Environmental Impact Analysis Process

FINAL ENVIRONMENTAL ASSESSMENT

**DEPLOYMENT TO
ROSWELL INDUSTRIAL AIR PARK,
NEW MEXICO**

July 1989

**U.S. AIR FORCE
STRATEGIC AIR COMMAND**

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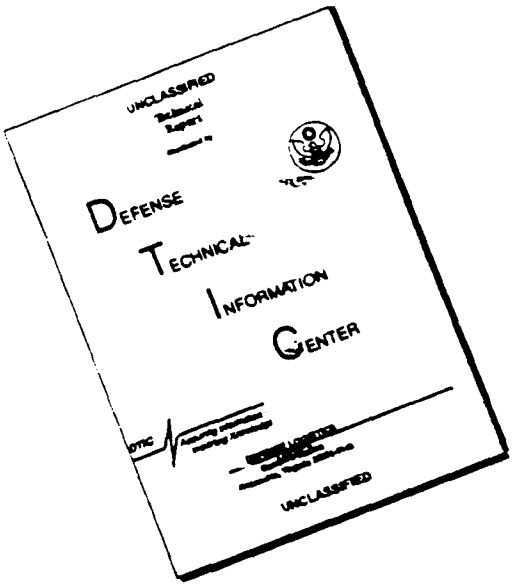

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16 JUL 93

MEMORANDUM FOR DTIC (Acquisition)
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Jack Bush, GM-14

Mr. Jack Bush
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1.0 Introduction.

This environmental assessment (EA) examines the potential environmental impacts of the proposed use of Roswell Air Park, Roswell, New Mexico as a forward operating base (FOB) during the July and September 1989 Mighty Force/Mighty Warrior exercises by units of the Strategic Air Command (SAC).

Use of the Tactical Fighter Weapons Center (TFWC) range complex at Nellis AFB, Nevada; the Utah Test Range (UTTR) at Hill AFB, Utah; Melrose Range at Cannon AFB, New Mexico; and Saylor Creek Range at Mountain Home AFB, Idaho and the associated low-level military training routes (MTR) are also scheduled during the deployments. The use of the range complexes and associated MTRs are addressed in the environmental assessments prepared for them, and are therefore not addressed here.

1.1 Purpose and Need.

The purpose of the proposed action is to use Roswell Industrial Air Park as a forward operating base (FOB) to test subordinate units' capability to deploy to austere facilities. The deployment would consist of preparation for deployment, flight operations, and support activities. The proposed action would enable SAC units to gain experience in performing crucial functions, such as aircraft maintenance, airfield operation, and fuels support, that are part of operations at a FOB during wartime.

1.2 Location of the Proposed Action.

Roswell Industrial Air Park is comprised of a 5000 acre plot of land located about five miles south of Roswell, Chaves County, New Mexico on State Highway 13 (see Figure 1.1). It was originally developed by the Army Corp of Engineers for use by SAC as a major military airfield. When the air base was deactiviated in 1967, the city of Roswell developed the site as a joint municipal airport and industrial park. The air park is currently used by, among others, six industrial plants, all classes of general and commercial aviation, the New Mexico Air National Guard, and, on a transient basis, aircraft of the United States Air Force.

The air park is situated on a 3600 feet above sea level, relatively flat plateau that lies within the western edge of the desert grasslands of southeastern Mexico. To the west are the foothills of the Capitan-Sacramento Mountains of south-central New Mexico. To the south lies the Chihuahuan Desert of southern New Mexico. The nearest major highway is US Highway 85 which runs north-south immediately to the northeast.

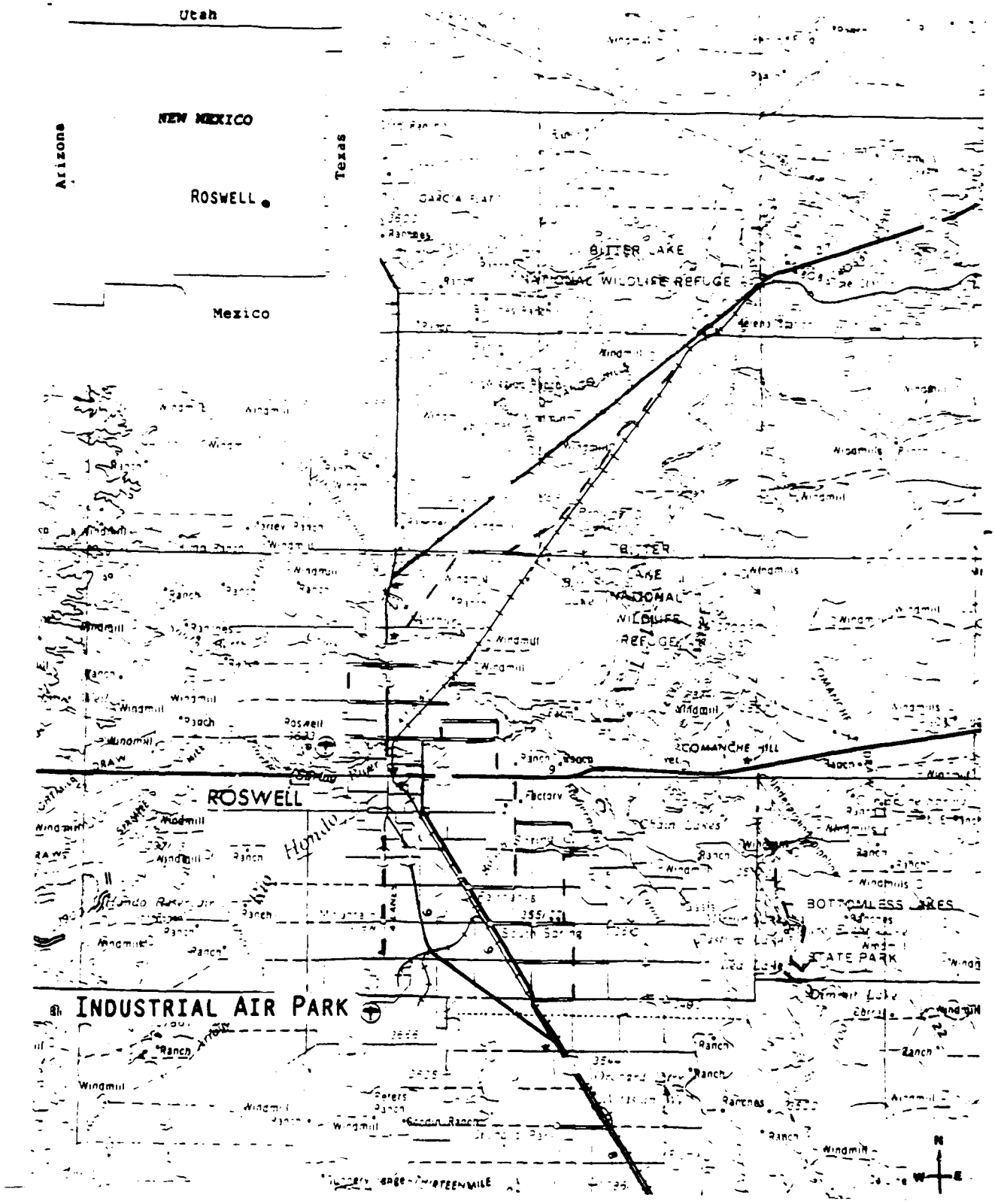

FIGURE 1.1: LOCATION OF THE PROPOSED ACTION

1.3 Regulatory Compliance.

This document was prepared in compliance with Air Force Regulation 19-2 (AFR 19-2, which implements the National Environmental Policy Act [NEPA], PL 91-190 [42 USC 4321 et seq.]), and regulations (40 CFR 1500 et seq.) established by the President's Council on Environmental Quality (CEQ). The CEQ requires that the environmental significance of a proposed action be assessed and documented in terms of the context of the action and its intensity. In considering the context of the proposed action, analysis must focus on the potential long and short-term impacts on three entities: (1) society as a whole, (2) the affected region and interests, and (3) the locality.

The purpose of this EA is to determine the environmental impacts of the proposed action. If such impacts are not judged to be significant, a finding of no significant impact (FONSI) will be issued and SAC may proceed with the proposed action. If the environmental impacts are found to be significant according to CEQ's criteria, an environmental impact statement (EIS) must be prepared before SAC may reach a decision regarding the proposed action.

The proposed action and feasible alternatives to the action are described in section 2.0. Section 3.0 describes the natural and human environment that would be affected, and section 4.0 assesses potential environmental impacts from the proposed action. Section 5.0 summarizes the findings of the EA and tests them against the ten criteria set forth by the CEQ to determine whether an EA is sufficient or whether an EIS is required (40 CFR 1508.27). Finally, section 6.0 describes mitigations and special flight operations that have been established to ensure that no significant environmental impacts occur.

2.0 Description of the Proposed Action & Alternatives.

2.1 Proposed Action.

The proposed action is to deploy bomb wings from SAC bases to Roswell Industrial Air Park for two separate three week deployments (July 15, 1989 through July 26, 1989 and September 11 through September 22, 1989). Flight operations would be limited to two weeks per deployment with the remaining days used for buildup and shutdown. No low-level military training routes (MTRs) would be flown enroute to, or out of the airfield.

Each deployment would consist of six B-52G/H bomber aircraft, four KC-135E/Q/R air-refueling aircraft and approximately 437 support personnel. A description of participating aircraft

is contained at Appendix A. Bomber aircraft would fly six and air-refueling aircraft would fly four sorties a weekday, between 8AM and 9PM.

Most sorties would use IR-126, or alternately IR-290 and IR-310 to access the the Tactical Fighter Weapons Center (TFWC) range complex at Nellis AFB, Nevada as part of Red Flag exercises (see Figure 2.1). A number of sorties would use IR-293 to access the Utah Test Range, Hill AFB, Utah. A smaller number of sorties would use Melrose Range, Cannon AFB, New Mexico and Saylor Creek Range, Mountain Home AFB, Idaho and their respective associated MTRs, IR-107 and IR-302/303. If environmental clearance can be secured, some sorties might be scheduled for Hardwood Range, Wisconsin.

Sorties flown as part of the July 1989 deployment would drop BDU 48 and BDU 50 inert (non-explosive) practice munitions on targets located at the various ranges. Sorties flown as part of the September deployment would utilize MK-82 and MK-117 live munitions against targets at the ranges. Munitions would be stored at the air park pending use at the range complexes. A description of munitions is contained at Appendix B.

Personnel would deploy under complete field conditions. The proposal would also deploy two P-4 firetrucks, six pick-up trucks, one flatbed truck, rent one dumptruck, and rent one payloader. A breakdown of the personnel, is provided below at Table 2.1 and, in more detail, Appendix C.

Table 2.1.: Personnel Deployed

Rank	No. Deployed			
Officer:	Non-Rated		Rated	
Lt Colonel	0		2	
Major	2		16	
Captain	09		66	
Lieutenant	0		4	
Subtotal	11	+	88	= 99
Enlisted:				
Senior/Chief Master Sergeant	3		0	
Master Sergeant	12		0	
Staff/Technical Sergeant	63		1	
Sergeant	236		23	
Subtotal	314	+	24	=338
				437 TOTAL

Source: 8AF/LGX Deployment Package, December 1988

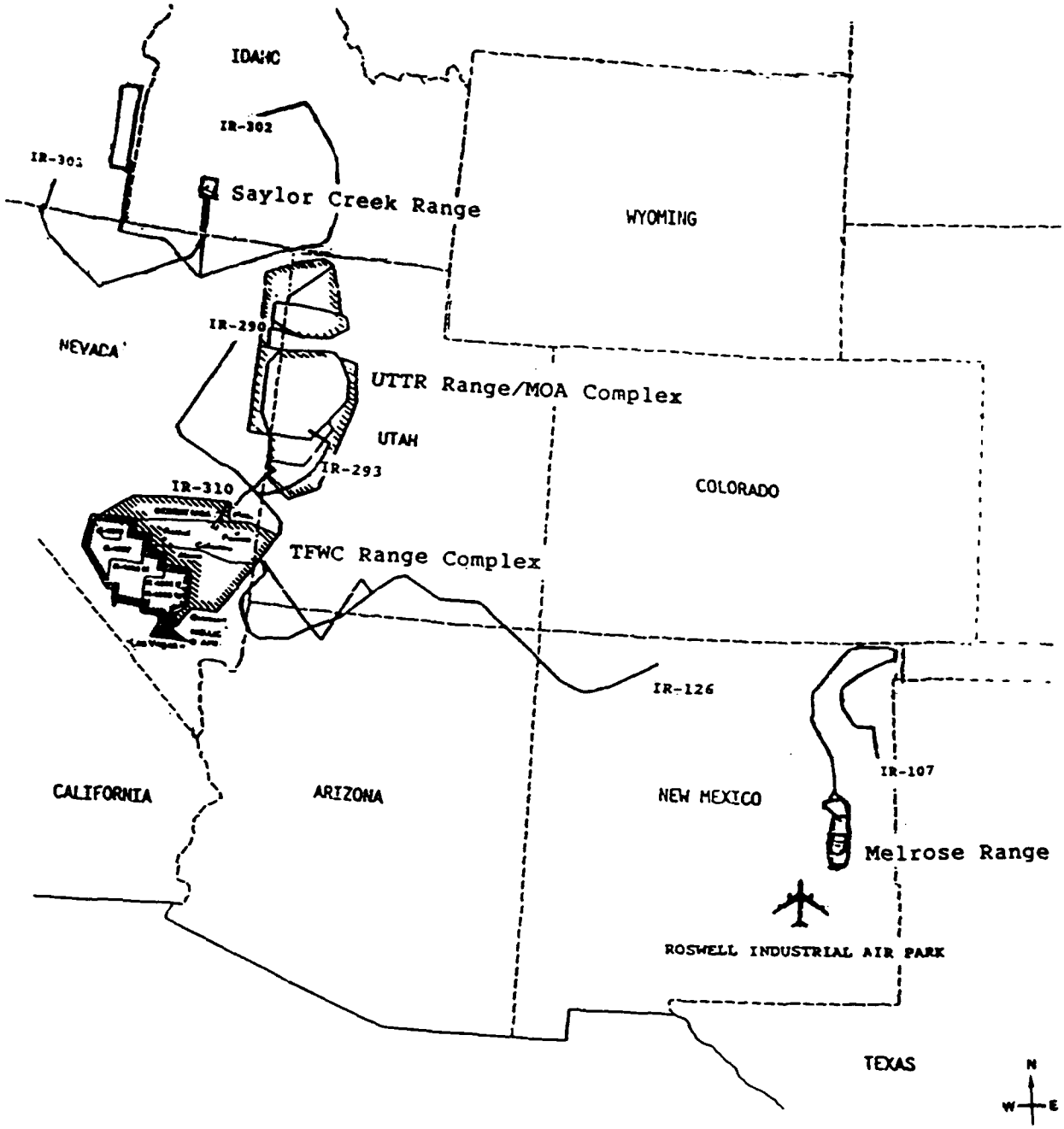

FIGURE 2.1: LOCATION OF PROPOSED ACTION AND ASSOCIATED AIRSPACE

The number of personnel and their ranks are approximations based on data contained in Appendix C. The ranks listed are those typically held by personnel holding the skill levels listed in the appendix.

Four buildings and one five-acre fuel bladder site would be leased as part of the proposal. Building 1776 is a 5272 square feet four bay concrete garage that has two large work bays, one large control bay, one open bay and installed and serviced utilities. Building 1166, the former alert facility, and the associated five acre fenced area would be used as a billeting complex. The building houses 120 persons, and has a kitchen, dining room, briefing room and office and storage space. The remainder of the personnel would be billeted in tents in the fenced area. The building is a two story, 18424 square feet concrete block wall, metal roofed facility. Determination of whether or not the water line can be serviced cannot be made until needed repairs are made to the electric lines which service it. There is parking for 50-100 vehicles. Building 1770, the proposed operations and maintenance center, is a 26,640 square foot, concrete foundation/concrete block wall facility. All utilities are in place and serviced. There is minimal parking. Building 1112, the proposed ammunition bunker, is a standard Air Force ammunition bunker. It was inspected during an explosive site survey and found to be operations ready with earth cover and blast door in place. An explosive site plan package for 30,000 pounds (Site Plan 87-S10) was approved in November 1987 and filed, together with the site survey, with HQ SAC. The location of the building and sites proposed for leasing is shown at Figure 2.2 and detailed descriptions are contained at Appendix D. Total leased acreage, inclusive of buildings, is twelve acres.

An earthen berm would house each of three twin fuel bladders. Each berm would be equipped with one inch drainage pipes located at each corner and lined with 6 mil thick, 40 feet by 100 feet sheets of polyurethane. Soil for the berms would be trucked in and would consist of a minimum of 1.5 times the volume of the fuel contained in each bladder. Berms would be constructed in a manner that ensured visibility in the area of runways and taxiways was not impaired. No excavations would occur as part of the construction. Construction would be performed by SAC civil engineer (Red Horse) teams and in accordance with Technical Order 37A3-2-3-1. No state, county or city permits are required. The fuel bladders consist of 1/4 inch thick rubber-impregnated fabric and have a 100,000 gallon capacity. Jet fuel would be transported via truck from Holloman AFB, New Mexico. Minor repairs required to bring the buildings and grounds up to standards would be performed by SAC civil engineers. These repairs would include repairs to Building 1776's leaking roof and wood facia, painting of

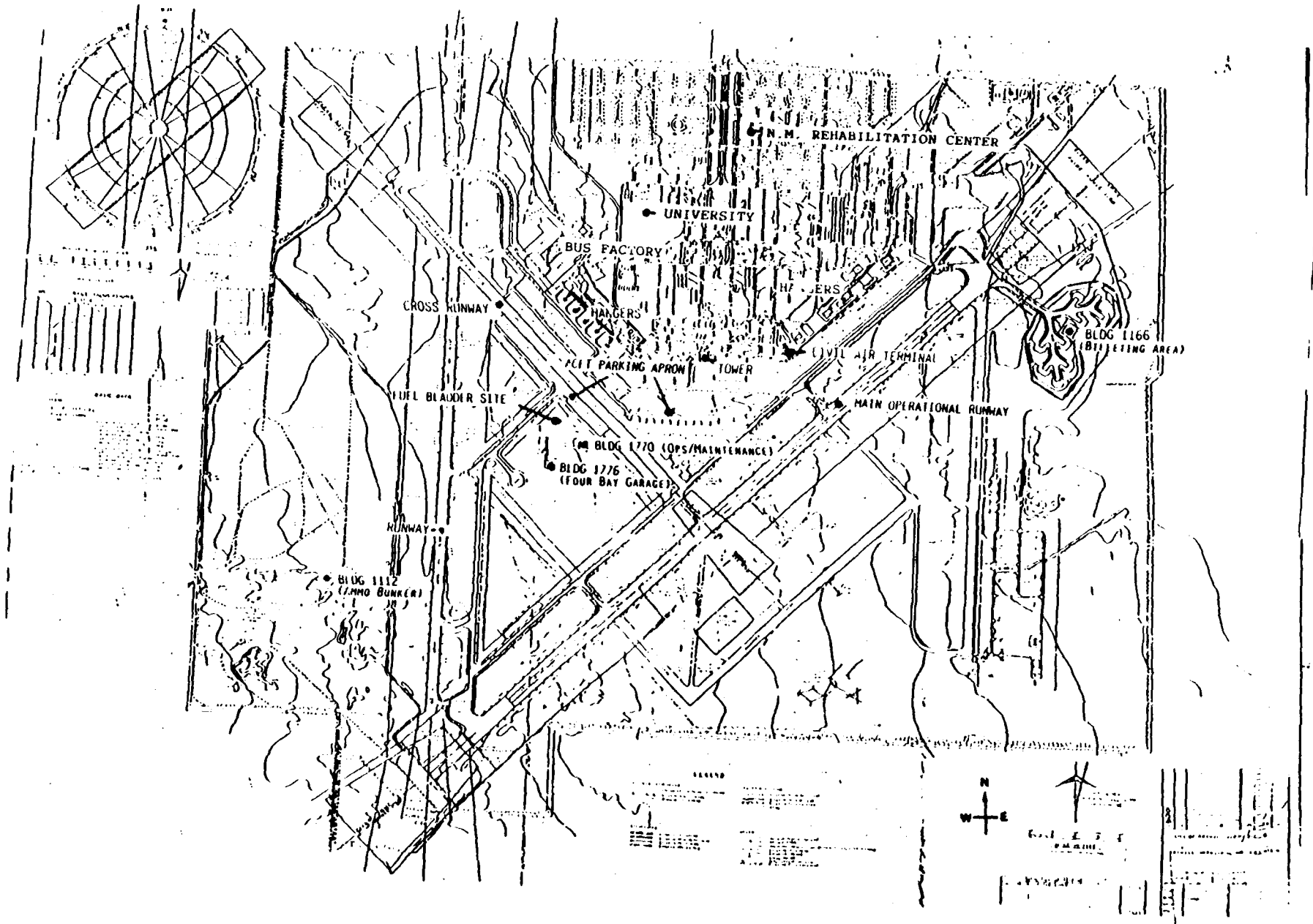

FIGURE 2.2: LOCATION OF PROPOSED LEASING SITES

Buildings 1776, 1116 and 1770, landscaping/yard clean-up of Building 1116, and minor repairs to Building 1770's electrical and plumbing systems.

2.1.1 SAC Operations Plan.

SAC proposes to use Roswell Industrial Air Park as a base of operations for training sorties flown over the TFWC Range Complex, Nellis AFB, Nevada and the UTTR, near Hill AFB, Utah and other ranges listed in paragraph 1.1. Aircraft using the air park would do so within the confines established by the air park operators and the local Federal Aviation Administration (FAA) authorities and in accordance with and in compliance with any direction, restrictions or guidance provided by these authorities. Aircraft would fly published instrument and visual patterns to Runway 21/03 with a runway mix of Runway 21, 80% and Runway 03, 20%.(i.e. landing and taking-off toward the southwest 80% and toward the northeast 20%). Each sortie would average less than two visual patterns with all visual patterns flown west of the airfield at a minimum altitude of 5400 feet AGL and at 80% rpm. All engine runs would be performed weekdays only, daylight hours, on the aircraft parking apron (adjacent to Runway 12/30 and east of Taxiway C), at a rate of 3.5 per week (2.5 by B-52 and 1 by KC-135) and 100% power setting. Aircraft in transit between the air park and MTRs would fly above 10,000 feet AGL.

SAC aircrews in transit to/operating on MTRs/ranges used during the exercises would do so within the confines established in the Department of Defense (DOD) Flight Information Publication (FLIP) AP/1B under control of the regional FAA Air Route Traffic Control Center (ARTCC) and in compliance with any direction, restrictions or guidance provided by the route/range operators.

SAC units would schedule the use of the range complexes by directly contacting the range operators. MTRs would be flown within the confines of the routes as published in the DOD FLIP AP/1B and in compliance with any direction, restrictions, or guidance provided by the route owner, HQ SAC/DONA, Offutt AFB, Nebraska. Aircrews would only enter the ranges when previously scheduled and only when cleared by the Range Control Officer (RCO) on duty. While on the ranges, SAC aircrews would comply fully with the directives in the range guide and with any local noise or environmental restrictions. While on a range, aircrews would proceed across the range, drop a bomb or complete a dry run, exit the range, and depart the area. This could be repeated a number of times as long as it has been previously scheduled with the RCO. SAC aircraft typically make three passes per sortie dropping one or two bombs, then depart the area.

SAC has used the TFWC Range Complex and UTTR since 1976 for

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC 20330 1000

OFFICE OF THE ASSISTANT SECRETARY

Sec'y
SUP:
4 ACT: LEER
5 INFO: LEEV

July 12, 1989

MEMORANDUM FOR AF/LEE

SUBJECT: Lease of Facilities and Land, MIGHTY WARRIOR , Roswell Industrial Air Center (IAC) , NM (My June 28, 1989 Memo) - INFORMATION MEMORANDUM

I have reviewed the amendments to the Environmental Assessment for the subject action and am satisfied that they adequately respond to my June 28, 1989 memorandum. Please convey my thanks to the SAC/DE staff for their response and my best wishes for a successful exercise.

GARY D. VEST
Deputy Assistant Secretary of the Air Force
(Environment, Safety and Occupational Health)

DEPARTMENT OF THE AIR FORCE

14 AUG 1989

John Peterson, Field Supervisor
Ecological Services
Albuquerque Field Office, Suite D
3530 Pan American, NE
Albuquerque, New Mexico 87107

Ref: Region 2/RF/CL 6-300

Dear Mr Peterson

On April 13, 1989, Ms Fowler-Proust of your staff informed Ms Mary Peters of our staff that she thought Section 7 consultation should be initiated regarding our proposal to use Roswell Industrial Air Park as a forward operating base. This office awaited a written response to our scoping letter but received none. On May 2, 1989 John Mastrianni of our staff called Ms Fowler-Proust to request further information regarding her concerns. We had, in our review of the proposal concluded no consultation was required and were curious as to her rationale. We felt, given the 2000 feet or more vertical separation between our proposed flights and the fact the flights occurred outside of the breeding season for those sensitive species (least tern) your office had expressed concern for, no consultation was required. Ms Fowler-Proust, when contacted, stated she had not meant to call for Section 7 consultation, she simply wanted to ensure that we scoped with the US Fish & Wildlife Service Ecological Services Office. Mr Mastrianni informed her we had sent a letter and she appeared satisfied.

On May 2, 1989 and again on May 3, 1989 Mr Mastrianni followed up his conversation with Ms Fowler-Proust by calling the Albuquerque Ecological Services Office. He talked to Mr Danahoo who stated he had not received our letter and offered to inquire with the regional office as to what had happened. Mr Mastrianni described our proposal to Mr Danahoo who stated that, based on the telephone conversation, it appeared there was no need for consultation under Section 7 but he would require more time to study the matter before making a final determination. He promised to forward a written reply as soon as possible.

On May 7, 1989 this office received Mr Danohoo's written reply which included a listing of species and information regarding the Section 7 process. There was no request for

consultation, however, and we assumed the matter had been settled to your office's satisfaction

Given the findings of the Roswell Environmental Assessment and the results of the consultation with your office, we feel we have complied with the Endangered Species Act and no further consultation is required.

If you have any further comments or questions, please contact John Mastrianni at telephone (402) 294-5854. Thank you for your interest and help in this matter.

George H. Gauger

GEORGE H. GAUGER, GS-12
Acting Chief, Environmental Planning Div
DCS/Engineering and Services

cc [redacted]

Red Flag/Green Flag exercises, operational tests and evaluations and training missions. Melrose and Saylor Creek Ranges have been used by SAC since 1989. SAC deployments to Roswell Industrial Air Park would support these exercises. SAC participation in the exercises would continue even without the Roswell deployment and as a result, the proposed action would have no impact on the airspace utilization of either range complexes or their associated low-level MTRs.

2.1.2 SAC Flight Restrictions.

Under provisions of AFR 60-16 using visual approach patterns to Runway 21 would fly 1000 feet AGL or higher when approaching within 2000 feet of populated areas (i.e. the city of Roswell). Additional flight restriction might be imposed by the local FAA authorities. Requests for temporary flight restrictions beyond those referred to above would be forwarded to HQ SAC/DON, the SAC airspace managers, by the New Mexico Clearinghouse Bureau.

2.2 Alternatives Considered but Not Carried Forward.

An alternative to the proposed action is to use a site other than Roswell Industrial Air Park. Nine sites were considered based on the following SAC developed criteria:

* The site must be within 1000 miles of the low-level entry point into the TFWC range complex.

* The accommodations must be inexpensive and simulate wartime conditions.

* The runway apron must have sufficient room for parking deployed aircraft.

* The runway must be strong enough to support a fully laden B-52 aircraft.

* The airfield must have night-flying facilities and instrument approach aids.

* Proposed U.S. Air Force flight operations must produce minimal conflict with other users.

2.2.1 Alternative Locations.

Three sites, Forbes, Kansas; Grant County, Washington and Yuma, Arizona were rejected as incapable of handling a fully laden B-52. Armarillo, Texas and Salina, Kansas were eliminated because they lack dormitories. In addition Armarillo lacks ramp space. Biggs AAF, El Paso Texas shares runways and taxiways with El Paso International Airport and

SAC access would be limited. Hunter Army Airfield, Georgia is to far from the TFWC range complex. Clinton-Sherman Industrial Air Park, Oklahoma, lacks FAA facilities.

Roswell Industrial Air Park is located approximately 650 statute air miles from the TFWC Range Complex and approximately 250 statute air miles southeast of the entry point to IR-126, the primary SAC low-level MTR used to access the TFWC Range Complex. The UTTR and its associated MTR, IR-293, are approximately 650 and 750 statute air miles northwest, respectively, of Roswell Industrial Air Park. Melrose, Saylor Creek and are also conveniently located. Air park accomodations are particularly well suited for the deployments because, as part of a former Air Force base, they require no modifications, provide adequate on-site low cost billeting and minimal shelter, thereby simulating actual wartime conditions. In addition the runway, taxiway pavement, and parking areas can easily accomodate a fully laden B-52. Finally the air park has night flying capability, full instrument approach capability and is administered by the FAA.

Roswell Industrial Air Park is the only airport that meets all selection criteria. Therefore, it alone, of all sites considered, is carried forward in this analysis.

2.2.2 No Action Alternative.

Selection of the no action alternative would result in cancellation of plans to lease facilities at Roswell Industrial Air Park. The facilities proposed for leasing by the Air Force would be made available for other leasing or purposes. Planned testing of SAC's capability to deploy in support of conventional war missions would be constrained and the planned deployments would have to either be cancelled or rescheduled for a less desirable time and/or location.

3.0 Existing Conditions.

This section describes the environmental setting surrounding Roswell Industrial Air Park. For purposes of this analysis the region of influence (ROI) has been defined as the six county area centered (see Figure 3.1 below) on Chaves County, New Mexico (Chaves, Lincoln, De Baca, Roosevelt, Lea and Eddy Counties New Mexico). In addition, the area falling within a twenty mile radius of the air park has been subjected to more detailed analysis. This area was isolated because it falls within the airspace under local air traffic control and would be subject to flight activity at or below 3000 feet above ground level (that is, flight activity falling within those parameters that require detailed environmental analysis). The topics discussed are earth resources, water resources, air

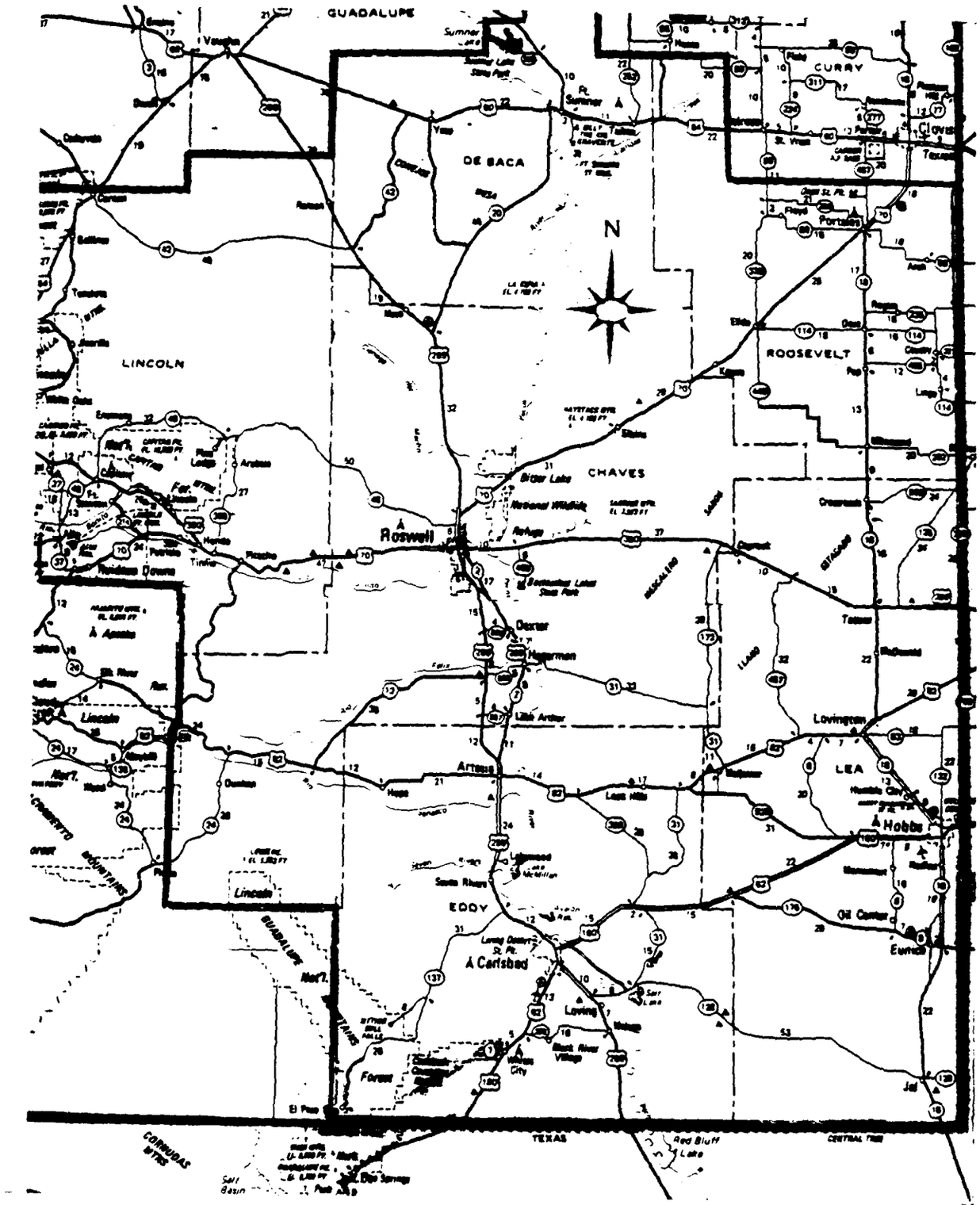

FIGURE 3.1: PROPOSED ACTION REGION OF INFLUENCE (ROI)

quality, biological resources, visual resources, land use, cultural resources, noise, socioeconomics, airspace utilization, and airspace and ground safety. The level of detail is limited to that required to support the impact analysis process undertaken in section 4.0.

3.1 Earth Resources.

This section addresses the physiography of the region surrounding Roswell Industrial Air Park. Included in the discussion is an overview of soil and mineral resources in the ROI and site specific data regarding Roswell Industrial Air Park.

3.1.1 General Geology

The ROI lies within two physiographic divisions, the Interior Plains and the Rocky Mountains. The eastern portion of the ROI falls within the broad high plains of the Staked Plains (LLano Estacado) of west Texas/eastern New Mexico. The central portion falls within the Pecos Plains. The western portion includes sections of the Capitan, Sacramento and Guadalupe Mountains. The proposed site falls within the Pecos Plain and is a relatively flat, west to east sloping upland area, approximately 3660 feet above mean sea level.

Oil and gas have long been produced in Lea and to a lesser degree in north-central/northeast Eddy and extreme eastern Chaves Counties. Large deposits of halite (sodium chloride) occur in Eddy County and the Carlsbad, Eddy County, and Hobbs, Lea County areas historically have produced large amounts of potash salts. Production in recent years, however has fallen off. Southern Eddy county has commercially viable sulpher deposits. Western Lincoln County has small coal seams that have been intermittently mined as a local fuel source. Metallic deposits are small and of poor quality. Although claims for a variety of metals have been filed, the only mining occurred near White Oaks, western Lincoln County, and that has been discontinued.

3.1.2 Soils.

Generally the ROI's western areas have shallow rocky soils with limestone bedrock within twenty inches of the soil surface. The draws and drainages below the hills and mountains have deep loamy soils. Soils along the Pecos River Valley are predominantly level, deep, varied in texture (ranging from sand to clay) with high concentrates of calcium carbonates (caliche) and gypsum. Along the eastern side of the river sand hummocks and dunes may be found. The ROI's eastern area soils are also varied in texture and depths and tend to have carbonate accumulations similar to those found

in the Pecos River Valley.

The soils at the site consist of level, deep sand loams with a clay loam subsoil. The soil is moderately calcareous in the surface layer and strongly calcareous in subsurface layers and strongly alkaline throughout. Runoff is medium or slow and the hazard of water erosion is slight. The hazard of soil blowing is moderate. The soils are well suited to agriculture, cattle grazing and wildlife habitation.

3.1.3 Geologic Hazards.

Geologic hazards include areas prone to landslides, geologic faults and earthquake related activities. No known geologic hazards exist in the project area.

3.2 Water Resources.

This section addresses the quantity and quality of surface and ground water associated with the Roswell Industrial Air Park. Wetlands and issues relating to water supply are considered outside this section's purview and are considered in paragraphs 3.7.4 and 3.9.4.1 respectively. The major water basin considered in this section is the Pecos River Basin. Other water basins in the general area, the Texas Gulf Basin, Arkansas-White-Red River Basin and the Rio Grande Basin were excluded because they fall outside the ROI.

3.2.1 Surface Water.

Roswell Industrial Air Park is located in the south central Pecos River Valley. Major tributaries of the Pecos within the ROI include Alomosa Creek, Cienaga del Macho, Rio Hondo, Rio Felix, and Seven Rivers. Other significant tributaries include Rocky Arroyo, Dark Canyon, Black River, and Delaware River. There is no surface water on the air park.

Most rainfall occurs as part of the frequent summer showers and thundershowers and over half of the annual precipitation of twelve inches occurs between June and September. Fall months see a marked decline, little precipitation occurs during the winter months, and Spring rains tend to be erratic and vary from very little to excessive amounts from year to year. As a result, surface flow tends to be erratic and strongly influenced by local rains. Drainage patterns on the air park are predominantly west to east except in the area of Runway 03/21 where it is southwest to northeast.

The average annual distribution of streamflow for the gauging station north of the proposed site, Summer Dam, De Baca County, is over 130 inches. Much of this water is drawn off for irrigation and by the time the river has reached

Carlsbad, Eddy County (about 55 miles south of the proposed site), the flow has been reduced to less than 40 inches. The annual average surface water supply is an estimated 205,000 acre feet. Water quality for those portions of the Pecos Basin in De Baca and northern Chaves County is estimated to be good. Run-off of pesticides and herbicides from irrigated farmland, pollution by dairy cattle operations in the area south of Roswell and potash processing in the Carlsbad, Eddy County and the Hobbs, Lea County area, and seepage/run-off from septic systems and the sewage treatment plants operated by the larger communities are sources of concern. Despite this, the overall quality of the water in the ROI is good.

3.2.2 Ground Water.

Ground water sources for the ROI are the Pecos River Valley Fill Aquifer and the Pecos River Basin Limestone Aquifer. The first includes the area of the Pecos River Valley west of the river and lying within central-western and southwestern Chaves County and northwestern and central-western Eddy County. The second comprises that part of the Pecos River basin running from central Chaves County south to central Eddy County. Water in the Pecos River Basin Limestone Aquifer flows eastward from its recharge area toward the Pecos River where the water discharges, or the Pecos River Basin Aquifer or to wells. The water becomes increasingly saline as it dissolves the gypsum that comprises the aquifer. As a result the area wells tend to produce water with high sulfate concentrations. These aquifers are a major source of water for domestic, industrial and agricultural uses throughout the ROI. Among the more prominent users are the irrigated farms along of the Pecos River basin within southern Chaves and northern Eddy Counties and the potash operations of southern Eddy County. The cities of Roswell, Chaves County and Artesia and Carlsbad, Eddy County are the major municipal users. The primary sources of pollution are the same as those listed for surface water.

3.3 Air Quality.

In general the ROI's air quality is good and the area is listed as an attainment area by the EPA. Wind flow, which is normally from the southeast or southwest at speeds of 10-16 mph and up to 50 mph, favor rapid dispersal of pollutants. Rapid dispersal of pollutants is also favored by the area's situation on a large flat, open plain. Storm fronts and associated cold air masses moving through the area produce occasional short duration winter inversions. Summer inversions last longer and convection columns can occur at any time. Most summer inversions are produced when air close to the ground is destabilized by solar radiation producing

air turbulence.

The primary source of air pollution is dust storms induced by wind action on exposed or disturbed soils. Potash mining/processing and oil/gas operations produce pollutants in the form of potassium chloride, potassium oxide, silicon oxide, hydrocarbons and oil field wastes.

The State of New Mexico air quality monitoring station in Roswell measures only total suspended particulates (TSP). In 1987, the last year for which data is available, TSP levels for Roswell were 52 ug/m^3. This level is well within state and federal standards. Pollutant levels and state and federal standards are listed in Table 3.1 below.

Table 3.1: Ambient Air Quality (ROI)

Pollutant	Averaging Time	ROI Levels	U.S. Standards
CO	8 hr		9.00 ppm
	1 hr		35.00 ppm
HC			
NO_x	Annual		.05 ppm
PM	Annual	52 ug/m^3	75.0 ug/m^3
SO_x	Annual		.03 ppm

Source: New Mexico Air Quality Bureau, 1989

3.4 Biological Resources.

Biological resources include native or naturalized plants and animals and the habitats in which they occur. The ROI flora and fauna populations of the ROI reflect the varied habitats, desert, desert grasslands and forest that comprise the area.

3.4.1 Wildlife.

The major big game species within the area include pronghorn antelope, mule deer, and some white-tailed deer. The Roswell Bureau of Land Management (BLM) district, of which the ROI comprises the major part, produces approximately forty percent of the antelope hunting in the state and consists of about seventy percent prime antelope range. The majority of the range is situated between the Pecos River and the Texas

border. Mule deer are scattered throughout the area with the major concentrations occurring in the mountainous area to the west. White-tailed deer are found primarily in the Guadalupe Mountains. Bear are found in scattered populations in the higher elevations of the mountains. In the late sixties, barbary sheep were introduced into the piedmont hills along the Rio Hondo (Chaves County).

Predatory mammals inhabiting the ROI include the coyote, bobcat, mountain lion and fox (kit, swift, gray and red). Coyotes and bobcats are abundant throughout the area and are considered nuisance species, particularly in the sheep grazing areas west of the Pecos River. The small mountain lion population is restricted to the upland areas to the west.

Game birds within the area include large and well distributed populations of mourning dove and scaled quail; bobwhite quail (eastern fringe of ROI) and the lesser prairie chicken (eastern area of ROI) occur in lesser numbers. The waterfowl population numbers over thirty species, is predominantly migratory and may be found, in significant numbers, only during the late fall through early spring months. Waterfowl tend to concentrate in the Bitter Lakes and along the Pecos River and associated streams. A large percentage of the lesser sandhill crane population winters, along the Rio Hondo and the Pecos River south of Roswell. Crane populations peak at approximately 70,000 in late October and then disperse over the Texas/New Mexico wintering area. An estimated population of 100,000 ducks (predominantly mallard, widgeon, pintail and ruddy), 60,000 snowy geese and 500-600 pelican winter on the Bitter Lakes and nearby bodies of water. Raptorial species that are year around residents include the golden eagle, Harris's hawk, great horned and burrowing owl, the red-tailed and marsh hawk, and the American kestral.

Due to excessive siltation, shallow depth and frequent drawdowns, game fish populations in the Pecos River and associated streams are limited. Small populations of channel catfish, bluegill, white bass and green sunfish occur in that segment of the Pecos between Lake Avalon and Lake McMillan (central Eddy County). Trout are stocked in the Black River (southern Eddy County) and the mountain streams in the western portions of the ROI.

3.4.2 Vegetation.

Aquatic vegetation is limited in the ROI and is confined to

small areas along the Pecos River and associated reservoirs. Recent expansions of agricultural lands and the resultant channeling and drainage projects have considerable reduced the population of these types of vegetation. The primary habitat for aquatic plants is the Bitter Lakes refuge which contains populations of saltcedar, seep willow, widgeongrass, muskgrass, saltgrass, scratchgrass, marshgrass, wirerush, sedge, cattail and pondweed.

The dominant terrestrial vegetation is grama grass with the drainage basins and adjacent areas dominated by bunch grasses (such as tobosa, sacaton and burrograss) and greasewood. As one moves east, the grama grasses mix with buffalo grasses, shinnery oak and mesquite. To the south of Roswell desert scrubs and creosate begin to intrude until, south and west of Carlsbad they dominate. In the foothill region west of the Pecos, pinon-juniper trees can be found. As the elevations increase with westward movement, the dominant vegetation transitions from grasses and shrubs to mountain oak and pine forests.

3.4.3 Rare and Threatened/Endangered Species.

Species present or migrant through the ROI that are federally or state listed, proposed for listing, or candidates for listing are identified in Table 3.2 below. Because overflights do not impact plants, only those plants identified as inhabiting areas potentially subject to physical intrusion are listed. Birds, mammals, reptiles mullusks and amphibians are potentially impacted by physical, noise and visual intrusion and are therefore listed for the entire ROI.

Table 3.2: Endangered/Threatened/Rare Species

Species	State Listed	Federally Listed	County	Occurence
Birds:				
Bunting, Varied	X		3	Regular
Cooter, River	X		3	Regular
Dove, common ground	X		3	Occasional
Eagle, American bald	X	X	1,2,5	Regular
Falcon, Peregrine	X	X	1,3,5	Occasional
Kite, Mississippi	X		1,3,4,6	Regular
Longspur, McCown's	X		all	Regular
Sparrow, Baird's	X		1 thru 5	Occasional
Tern, Least	X	X	1,3	Regular (1)
Vireo, Bell's	X		1,3	Regular (3)
Vireo, Gray	X		3,5	Occasional

Table 3.2: Endangered/Threatened/Rare Species (cont'd)

Species	State Listed	Federally Listed	County	Occurence
Mammals:				
Chipmunk, Colorado	X		5	Regular
Prairie Dog, Black-tailed	X		5	Regular
Shrew, Least	X		6	Occasional
Amphibians/Reptiles/Mullosks:				
Frog, Barking	X		1,3	Regular
Lizard, Sagebrush	X		1,2	Regular (1)
Mussel, Pope's	X		3	Regular
Rattlesnake, Rock	X		3	Regular
Salamander, Sacramento Mts	X		5	Regular
Snail, Koster's Spring	X		1	Regular
Snail, New Mexico Ramshorn	X		1	Regular
Snail, Pecos Spring	X		3	Regular
Snail, Roswell Spring	X		1	Regular
Snake, Plainbelly Water	X		3	Regular
Snake, Trans-Peco Rat	X		3,5	Regular (3)
Snake, Western Ribbon	X		1,3	Regular (3)
Plants: None				
Fish:				
Assiminea, Pecos	X		1	Regular
Darter, Greenthroat	X		1,3	Regular
Gambusia, Pecos	X		1,3	Regular
Logperch, Bigscale	X		1,2,3	Regular (3)
Pupfish, White Sands	X		5	Regular
Shiner, Bluntnose	X		1,2,3	Regular
Sucker, Blue	X		3	Regular
Redhorse, Gray	X		3	Regular
Tetra, Mexican	X		3	Regular

Key: 1=Chaves CO. 2=De Baca CO. 3=Eddy CO 4= Lea CO
5=Lincoln CO 6=Roosevelt CO

Source: NM Dept of Fish & Game, US Fish & Wildlife Service, 1989

3.5 Visual Resources

Visual resources are evaluated in terms of visual quality and the visual sensitivity of the public. Visual quality is the relative level of natural beauty of a landscape in terms of the form, line, color and texture of the topography, vegetation and structures. Visual resources within the ROI are a combination of topographic relief, vegetative cover and cultural modifications (BLM, 1981). Visual resources within the region have been inventoried by the BLM and classified according to its Visual Resource Management (VRM) System. Under the system, areas are assessed according to a scale of I to V, with "I" being the highest value. VRM I and II classifications are assigned to areas where, alterations to the basic visual quality of an area should be avoided.

The basic character of the ROI is that of a low rolling prairie that blends into mountainous terrain to the west and is bisected by the Pecos River Valley. Cultural modifications include those structures typical of cattle ranching, energy production and urban areas to include but not limited to buildings, gas rigs, power lines, railroad tracks, potash refineries and air park operations.

Included in the region's visual resources are six areas identified by the BLM as VRM I or VRM II areas. The Mathers Research Natural Area (96 acres) and the Mescalero Sands Outstanding Natural Area (6293 acres) are VRM I areas (located astride Hwy 380, east of the Pecos River, near the county line). The northern portion of Comanche Hill (which runs north to south astride Hwy 380 east of the river at a point 13 miles northeast of the air park) and the Pecos River basin from the Chaves/Eddy County line south are listed as VRM II areas.

3.6 Land Use.

The counties that comprise the ROI are predominantly rural, with small and scattered populations. Agriculture comprises the largest single land use. Most of the land area of the ROI consists of grassland and grazing land used by large beef cattle ranches, and in the area west of Roswell, sheep and goat ranches. A graphic portrayal of the land use within the Roswell District (BLM) is contained at Appendix E. There are about 20,000 acres of commercial forest land (exclusive of national forests) on the elevated areas in central Lincoln and extreme western Chaves Counties. Much of the grassland and grazing land is public land administered by the Bureau of Land Management (BLM). Two large cattle feedlots, Bogle Farms and Hilltop Feeders, with a total capacity of 27,000 head, are located west of Dexter near the Felix River. Within the Pecos River Basin, between the Rio Hondo and Rio Felix and the area north of Carlsbad, cotton and small grains are grown on irrigated

cropland. The State of New Mexico is currently under court order to compensate the State of Texas for Pecos River water used in excess of New Mexico's allotment. If the court rules the payment must be made in kind, this irrigated farmland would be jeopardized. Small oil and gas fields are situated throughout the ROI with the majority of them located within eastern Eddy County. Eastern Eddy county also has several potash mining and processing operations. Extreme eastern Roosevelt and Eddy Counties have isolated areas of cropland/grazing land mix. US Hwys 70 & 380 and state highways 13, 31 and 48 transit the area east to west and US Hwy 285 transits the area north to south.

Land use within Chaves County is governed by the Roswell-Chaves County Extraterritorial Zoning Ordinance and the City of Roswell Zoning Ordinance. Roswell Industrial Air Park is zoned for heavy industry with the exception of the entrance road (zoned park and open space), the old base housing area (zoned low density housing), and the university/rehabilitation center (zoned public). The industrial area currently contains a bus manufactoring plant (western section) and its associated bus storage area (eastern section). A two mile "extraterritorial zone" under city/county jurisdiction surrounds Roswell Industrial Air Park. In 1977 the FAA established Ldn zones designed to correlate Ldn levels generated by air park operations to land use within the extraterritorial zone (Figure 3.2). Within the extraterritorial zone areas labeled LDN Zone 4 are limited to agriculture, except dairy, mink or poultry production, farmland with no structures. Areas labeled LDN Zone 2/3 are restricted to one structure per 5 acres and any use permitted in Ldn 4 and R-S Suburban Zones plus general agriculture, and public/private open lands/parks. Areas within the extraterritorial zone but outside Ldn zones are zoned Ldn 1 R-S Rural Suburban and are limited to single family 5 acre residential plots as a water conservation measure. The mobile home park at South Spring Acres falls within the RS Rural Suburban Zone, but because it predates the adoption of the zoning regulations, it is allowed as an exception to the general zoning pattern. The DSB overlay zone is a water conservation zone within the R-S Suburban zone. It is limited to residential 10 acre plots. The area between State Route 2 and the Pecos river immediately to the east and southeast of the air park, and at distances ranging from one to six miles from the final approach airway to Runway 21, is used by large scale dairy cattle operations that total 10,000 head. Smaller cattle feedlots and large scale dairy cattle operations are spread throughout the area east and southeast of Roswell. East Grand Plains school is located within the same general area at a point 1.25 miles south of the air corridor.

3.7 Cultural Resources.

Cultural resources within the ROI include prehistoric and historic sites, designated and proposed National Register Places,

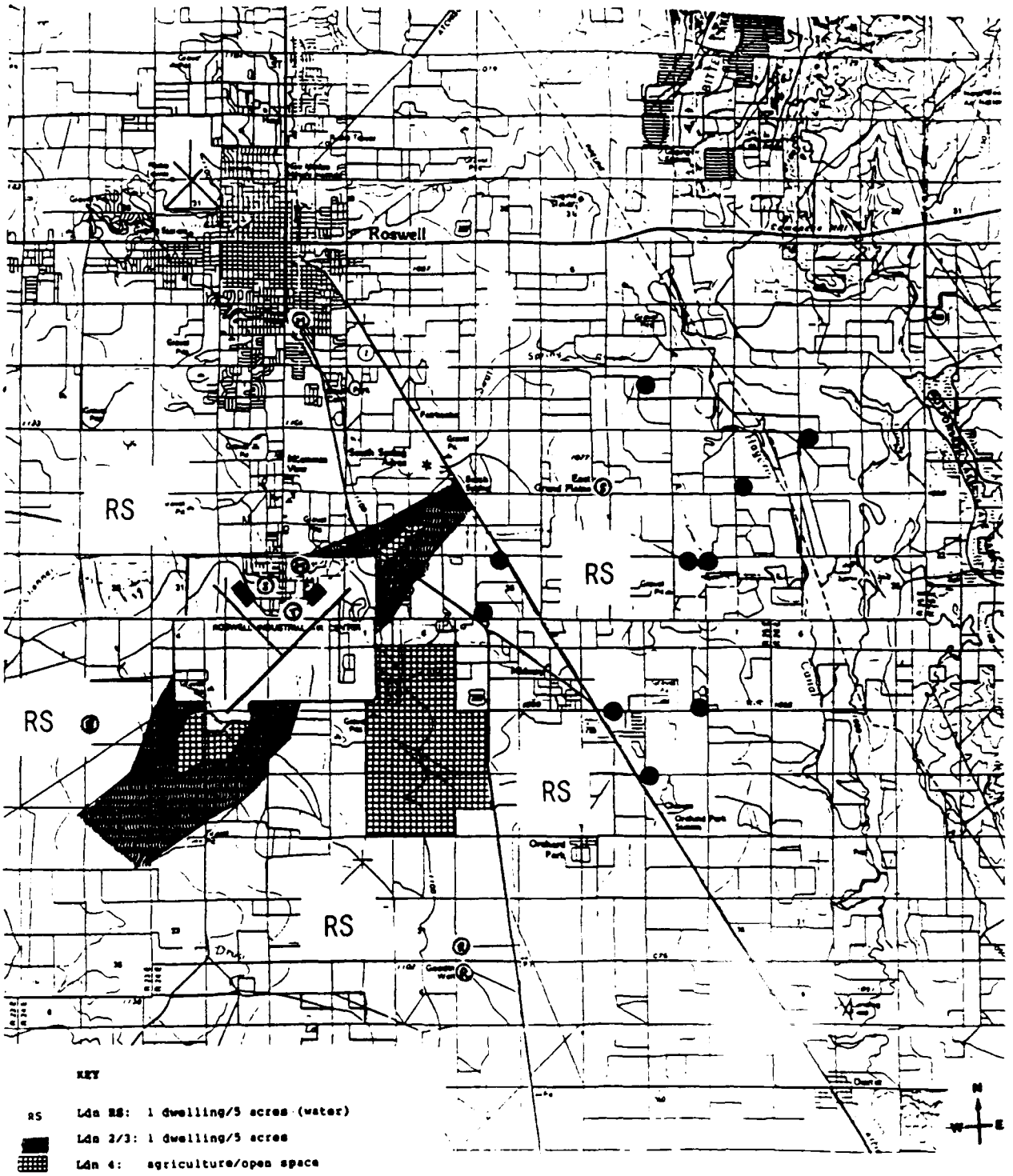

FIGURE 3.2: LAND USE - CHAVES COUNTY

recreation areas and state and federal protected lands. The most extensive survey of the ROIs archeological/historical sites was conducted by the BLM as part of their 1981 environmental assessment of oil and gas leasing. At that time they inventoried approximately 520 cultural resources sites on public lands. Most of their sites are associated with prehistoric or historic temporary campsites (mainly caves and rock shelters) used by native American peoples prior to European settlement.

3.7.1 National Register Sites.

The New Mexico Office of Historical Affairs, the Roswell Historical Society, and the National Register of Historic Sites were consulted regarding historic/archeological sites located within the ROI. Particular emphasis was placed on sites within Chaves County and the Roswell Industrial Air Park. No known sites are located either within Chaves County or the air park. It was stressed, however that no comprehensive survey of the land comprising the air park has been made. Table 3.3 below lists those sites listed for the ROI outside of Chaves County.

Table 3.3: National Register Sites

Site	Location	Description
De Baca County		
Ft Summer Ruins	SE of Ft Summer	adobe ruins
Eddy County		
First National Bank	Carlsbad	late 1800's bank
Reclamation Project	N. of Carlsbad	1880's dam
Lea County		
None		
Lincoln County		
Historic District	Lincoln	1870's cow town
Fort Stanton	Captain vicinity	1850's stone fort
Historic District	White Oaks	mining town
Feather Cave	Lincoln vicinity	petrographs
Roosevelt County		
Anderson Basin	12 miles SE Clovis	prehistoric site

Source: National Register of Historic Sites, N.M. Office of Historic Preservation and Roswell Historical Society, 1989

3.7.2 Federally Protected Lands.

Federally protected lands within the ROI include national forest, national park, BLM administered, and national wildlife refuge acreage. Lincoln National Forest incorporates 1,103,441 acres. Much of central Lincoln County and isolated sections of extreme western Chaves County and extreme southwestern Eddy County are included in the forest. Extreme northwestern Lincoln County falls within Cibola National Forest. the BLM administers 1,175,938 acres in Chaves County and an additional 14.5 million acres throughout the remaining counties of the ROI. Carlsbad Caverns National Park contains 43,714 acres and lies within extreme southwestern Eddy County and Bitter Lakes National Wildlife Refuge is located approximately 10.25 miles northeast of Roswell Industrial Air Park. The refuge is currently being expanded by the addition of wetlands located immediately to the south of the current boundary. When the expansion is completed, the refuge will total 24,900 acres. A graphic portrayal of federally protected lands is contained at Appendix E.

3.7.3 State Protected Lands.

State protected lands within the ROI include: Bottomless Lakes State Park (located 11.5 miles east of the Roswell Industrial Air Park); Summer Lake State Park, Fort Summer State Monument (Ft Summer, De Baca CO.); Oasis State Park (Portales, Roosevelt CO.); Valley of Fire State Park (Carrizozo, Lincoln CO.); White Mountains Wilderness Area (Oscura, Lincoln CO.) and Living Desert State Park (Carlsbad, Eddy CO.). In addition, there are isolated state protected lands throughout the ROI, including acreage located immediately southwest of the air park. A graphic portrayal of state protected lands is contained at Appendix E.

3.7.4 Wetlands.

The US Fish & Wildlife Service defines wetlands as areas where water is the primary factor controlling the environment and the associated plant and animal life. These transitional habitats occur between upland and aquatic environments where the water table is at or near the surface of the land, or where the land is covered by water up to six feet deep. Freshwater wetlands are classed as lacustrine (lakes), riverine, or palustrine (marshy).

Wetlands in the ROI consist primarily of riverine systems associated with the Pecos River and its tributaries. These wetlands are vulnerable to the strong seasonal pattern of rainfall and, as a result experience wide annual and seasonal variations in stream flow. Noteworthy wetlands in the region include the Bitter Lakes National Wildlife Refuge (located 10.25 miles northeast of Roswell Industrial Air Park) and the playa lakes of extreme eastern New Mexico and West Texas.

3.8 Current Noise Levels & Sources.

The principal noise sources in the ROI are low-level jet aircraft overflights (associated with the several military operating areas), airport operations, farm machinery, residential/urbanized areas, vehicular traffic and noise associated with oil extraction operations. No baseline data regarding the ambient noise levels of the ROI exist, but sources of the type listed produce episodic noise levels ranging from 70dB to 120dB. Low-level jet overflights of military operating areas produce episodic noise levels as high as 115dB.

The principal noise source in the project area is air park operations. Primary noise sources include aircraft landings and take-offs and aircraft maintenance. Secondary noise sources consist of those activities typically associated with light industry.

The federal government (Departments of Transportation, Housing & Urban Development and the Environmental Protection Agency) has established noise level standards for determining suitability for different classes of land use (DOT, 1980). Ldn values in excess of 65 dB are considered the threshold at which an area's suitability as a residential area is jeapardized. Ldn values in excess of 75 dB are considered unacceptable for sensitive land uses such as hospitals or schools.

SAC's experience indicates Ldn levels of 65 dB may possibly be experienced along runway approach patterns at distances as great as twenty miles from the ends of, and five miles to the right and left of, a runway. The above criteria was used as a basis for inventorying noise sensitive areas potentially subject to noise generated by current aircraft operations at Roswell Industrial Air Park. All noise sensitive land uses within a ten mile wide and forty mile long corridor, centered on the main runway were included. The Noisemap Noise Model (USAF 1989) was used to generate a graphic depiction of the noise contours generated by current air park flight operations as listed in Table 3.7. Levels of baseline aircraft operations shown in this table are monthly figures. HQ AFESC has converted the monthly baseline to average busy day figures for integration with proposed SAC flights operations. The model calculates Ldn values (average day/night noise level) based on flight activity for a typical busy day. The results are shown in Figure 3.3 below.

Ldn levels in excess of 80 dB are limited to those areas within the air park boundaries and adjacent to Runway 03/21. Ldn levels of 75-79 dB extend 6500 feet southwest of air park boundaries. Ldn levels of 70-74 dB extend 15,000 feet southwest and 7,000 feet (near state highway 2) northeast of air park boundaries. Ldn levels of 65-69 dB extend 24,500 feet southwest and 19,000 feet (near the main railroad tracks) northeast of air park boundaries. No areas identified as sensitive land use in paragraph 3.6 or as populated, to include ranches, in paragraph

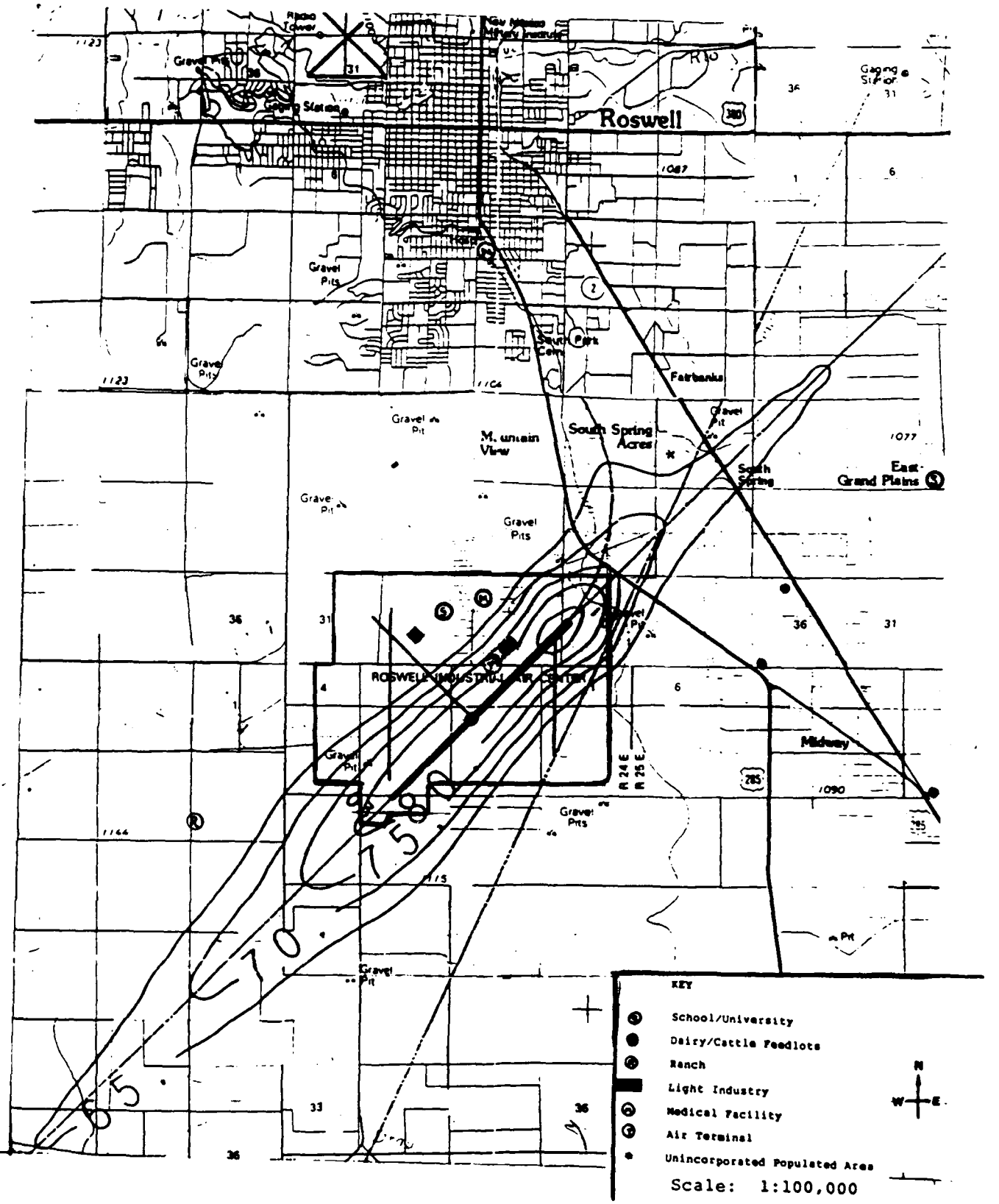

FIGURE 3.3: ROSWELL BASELINE NOISE CONTOURS

3.9.1 are subject to Ldn levels of 65 or higher. South Spring Acres is subject to Ldn 64 dB, which is borderline. The air park industrial area (east) is subject to Ldn 76 - Ldn 85. The air park industrial area (west) is less than Ldn 65. The findings of the SAC generated noise model is compatible with the FAA findings recorded in Figure 3.2, and paragraph 6, Land Use.

3.9 Socioeconomics.

The focus of this section is population and employment patterns in Roswell New Mexico and the surrounding communities that comprise Chaves County. This area was selected in lieu of considering the entire region of influence because the limited nature and duration of the proposed action makes impacts to geographic areas other than those listed unlikely.

3.9.1 Population.

Roswell is the only urban area within Chaves County. The estimated 1988 population of Roswell was 48,900, up from 39,767 in 1980 and 39,593 in 1960. The estimated Chaves County (1988) population is 57,774, up from 43,335 in 1970 and down from 56, 649 in 1960. The Chaves County population exclusive of the City of Roswell (1987) was 17,056 in 1960 and is currently estimated to be 14000 or 2.3 persons per square mile. The drop in county population between 1960 and 1970 was due to the closure of Walker Air Force Base. The only other communities with populations over 300 are Hagerman (1987 population 936) and Dexter (1987 population 882). Both towns are located in south-central Chaves County, southeast of Roswell. In addition to the above listed populated areas, there are a number of ranches spread over the plains surrounding Roswell. Three of these are within twenty miles of the air park. All are outside the area affected by air park generated noise. Populated areas of Chaves County lying within twenty miles of Roswell Industrial Air Park and their location in relation to the air park are listed at Table 3.4.

Table 3.4: Population Concentrations

Town/Area	Location	Population
Roswell	5 miles north	48,000
Mountain View	immediately north	300
Hagerman	17 miles SE	936
Dexter	11.5 miles SE	882
Midway	4 miles east	50
South Spring Acres	2.9 miles E by NE	200
East Grand Plains	5.7 miles NE	200

Source: Roswell New Mexico Chamber of Commerce, 1989

The growth rate for the City of Roswell between 1960 and the

present was 20%, or an average growth rate of 1% per year. This figure, however, is misleading because the city suffered a short term population decrease in the late 1960's with the closing of Walker AFB. In fact, most of the population increase was experienced as part of the economic expansion associated with the development of the industrial air park in the 1980's. The growth rate for Chaves County, less the City of Roswell during the same period was a negative 18%.

3.9.2 Public Acceptance.

No comprehensive survey of public attitudes toward aircraft operations in the area of Roswell has been made. As a result public attitudes regarding these flight operations are difficult to gauge. Civic leaders, to include the mayor and members of the chamber of commerce were questioned regarding public attitudes. The consensus was flights promoted needed business growth. However, the limited scope and business orientation of those questioned makes survey based conclusions unreliable. A generic discussion of annoyance is contained at Appendix F.

The Noisemap model (USAF, 1980), which measures annoyance as a function of the number of overflights per twenty-four hours, was used to calculate the number of persons likely to be highly annoyed by current flight operations at the air park (see Appendix G). This model is nationally recognized as an effective means of measuring the impacts of airport noise. Areas subjected to Ldn levels below 65 dB (i.e. those areas west and north of the air park) were discounted because they fall outside the criteria listed in paragraph 3.6 as impacting the land use. Areas south of the air park and Ldn levels in excess of 65 dB were discounted because areas affected are either unpopulated or contained within the air park which is zoned for industrial use. Areas northeast of Runway 03/21 subject to air park generated noise levels above Ldn 65 dB experience only transient human presence (i.e. vehicular traffic on Highway 2) and were also discounted. South Spring Acres mobile home court was considered because it is the only populated area subjected to air park generated noise levels approaching the Ldn 65 dB (i.e. an estimated 64 dB) government established critieria. The estimated population of South Spring Acres is 200 persons (from Table 3.4). At current flight levels of 30 flights a day, the Noisemap Model calculates 13% of the population of South Spring Acres, or 26 persons are to be highly annoyed. None of the remaining population of Chaves County would be annoyed.

3.9.3 Employment.

The area's economic base is varied with significant employment in manufacturing (13%), retail and wholesale trade, (20%) mining (6%) and agriculture (9%). A listing of the major employers is

contained in Table 3.5 and Table 3.6 respectively.

Table 3.5: Employment

Employer	Service	Number Employees
Transportation Mfg Corp*	Buses	1000+
Roswell Public Schools	Education	929
Levi Strauss & CO	Men's Jeans	541
City of Roswell	Government	480
Eastern N. M. Medical	Hospital	280
US Postal Service	Postal Service	173
Safeway Stores	Retail Groceries	126
Mealmakers Inc	Food Processing	125
Pioneer Saving & Trust	Banking	123
K-Mart	Retail	120
SW Public Service	Utilities	111
Roswell Baking CO.	Bakery	102
Consolidated	Soft Drinks	90
Fibertech Inc	Molded Fiberglass	50

Note: * indicates a firm located on the air park grounds.

Source: Roswell Chamber of Commerce, 1988

Table 3.6: ROI Labor Force Statistics

County	Labor Force	Employed	Unemployed	Rate
Chaves	24,734	23,471	1,263	5.1%
De Baca	882	801	81	9.2%
Eddy	21,106	19,436	1,670	7.9%
Lea	23,130	21,579	1,551	6.7%
Lincoln	6,640	6,188	452	6.9%
Roosevelt	7,818	7,484	334	4.3%

Source: New Mexico Labor Market Review, 1989.

3.9.4 Utilities

The proposed development would require contracting with local water, power and waste disposal authorities for the provision of services to leased buildings/sites.

3.9.4.1 Water Supply.

The local water supply has a capacity of 40,510,080 GPD, a peak load of 30 MGPD in summer and a peak load of 9 MGPD in winter. Overhead storage capacity is 500,000 gallons and the ground storage capacity is 23 million gallons. The source is a municipally controlled 200 hundred feet deep artesian basin

located west of Roswell. Roswell Industrial Air Park's 500,000 gallon elevated reservoir is fed by three 500-800 feet wells and a 42 inch city mainline. Six and eight inch lines distribute water within the air park. The proposed leasing sites are served by one inch lines. All lines, except Building 1166, are serviced.

3.9.4.2 Waste Disposal.

Waste Disposal is the responsibility of the municipality. Solid waste is handled by a city owned and operated landfill. A mechanical 2-stage trickling filter plant, again city owned, with a capacity of 16 MGPD handles liquid waste. It is currently operating at 23% capacity. City trucks do not service the air park and its liquid and solid waste disposal is contracted to Waste Disposal of New Mexico Inc. In addition storm and sanitary sewers serve most parts of the city and the air park.

Buildings 1770 and 1776 have septic tanks and an oxidation pond. Building 1166 has two septic tanks, a lift station and an oxidation pond. All septic tanks were last used in 1967 but have been periodically checked and are servicable. The Building 1166 septic tanks are to 8 feet 6 inches deep, 23 feet long and 9 feet wide and are interconnected by an 8 inch sewer line and a lift station. They are currently approved for 2000 gallons per day. Any increase would require a new permit.

3.9.4.3 Electricity/Natural Gas.

Electricity and natural gas is provided by the privately owned Southwestern Public Service Company and the Gas Company of New Mexico, respectively. The electric company provides 4.1 Kv meter service to the air park and the city provides service to individual buildings. Natural gas is transmitted by one ten inch line and two eight inch lines to a central meter at the air park. The City of Roswell assumes responsibility for service to individual buildings which are serviced by 2-3 inch lines.

3.9.5 Transportation.

Three major highways serve the area (US Highways 70, 285 and 380). US Highway 70 is four lanes and divided in the Roswell area. These highways form a east/west, north/south oriented cross pattern that intersects in the city center. Daily traffic at the air park is 9000 vehicles with peak traffic occuring at 6 AM and 2:30-3 PM. The Atchison, Topeka & Santa Fe railroad provides five switching services per week. Five motor freight carriers (Apex, Roadway, Sun Freightways, Perry and Yellow) provide intra-state and interstate service. Mesa and Continental airlines provide regular passenger air service and United Parcel, Puralator and Federal Express provide air freight service to Roswell Industrial Air Park. Intercity bus service is provided by Texas, New Mexico and Oklahoma Coaches. On call shuttle

service between the major hotels and the air park is available as is cab service.

3.9.6 Communications.

Roswell is served by a daily newspaper, seven radio & two television stations, cable television, telephone service (Mountain Bell) and telegraph service (Western Union), and the Postal Service.

3.9.7 Housing.

Billeting of deploying personnel will be limited to the use of Air Park sites leased by the Air Force for the purpose. As a result, area housing is not expected to be effected and is not considered in detail here. Transient housing in Chaves County consists of 921 hotel/motel rooms in 18 hotels/motels. All are located in Roswell.

3.9.8 Medical Facilities

There are two hospitals, one clinic and three rest homes in Chaves County. St Mary's Hospital, Eastern New Mexico Medical Center and the three rest homes are located within Roswell city limits. The New Mexico Rehabilitation Center is located on the Roswell Industrial Air Park. The hospitals provide general medical and surgical short-term care. The Eastern New Mexico Medical Center has 95 beds, an occupancy rate of 55% and sees an average of 54 patients a day. St Mary's Hospital has 238 beds (120 in a nursing care unit), an occupancy rate of 76.5% and sees an average of 182 patients a day (non-nursing care). The New Mexico Rehabilitation Center specializes in short-term rehabilitative care, has 25 beds and a 68.5% occupancy rate.

3.9.9 Recreation/Community Service Facilities.

Community and recreational facilities in the greater Roswell area include 95 churches of various faiths, 3 museums, 1 country club, 15 civic clubs, 1 library, 25 local and one state park (Bottomless Lakes), 3 theaters, 8 movie screens, a health spa, 3 golf courses and various athletic fields.

Recreation is centered on outdoor activities such as hunting, fishing, camping, picknicking, sightseeing, visiting historical sites and hiking. Recreation facilities within the ROI include Lincoln National Forest, the outdoor (including skiing) facilities on the Mescalero Indian Reservation, Carlsbad Caverns National Park, Lake Van, and Ruidoso Downs (horse racing).

3.10 Airspace Utilization.

The FAA is charged by Congress with the regulation of airspace

within the confines of the United States. It is the final authority in all matters relating to airspace utilization. The ROI includes both controlled and uncontrolled airspace including MOAs, restricted areas, control areas, airport traffic areas, and control zones. No MTRs transit the ROI. MOAs and restricted areas are controlled airspace that separate participating military and non-participating military and civilian air traffic by notifying flyers that high speed military aircraft are engaged in complex maneuvers within the designated airspace. Control areas are FAA designated routes and airways. Airport traffic areas and control zones are controlled airspace that extend five statute miles out from the geographic center of the airport and and as high as 3,000 AGL.

Airspace utilization within the ROI is graphically presented at Figure 3.4. Overlying the ROI are four military operating areas (MOAs) and Melrose Range (R5104/5). Flight operations within the MOAs are normally restricted to subsonic speeds above 287 mph and 100 feet AGL to 18,000 feet above sea level.

Reese One and Reese Three, Beak A, and Talon MOAs are used primarily by T-37, T-38 and F-15 aircraft for multi-flight level training flights. Pecos MOA is used primarily by F-111 aircraft in conjunction with practice bombing missions over Melrose Range.

In addition to Roswell Industrial Air Park, there are six airfields within the ROI. The airfields at Hobbs Industrial Air Park and Cavern City Air Terminal (Carlsbad) are regional airports. The remaining airfields are located at Artesia, Tatum-Lea County, Seven Rivers and Sierra Blanca. Five federal airways transit the area.

Historically Roswell Industrial Air Park tower traffic consists of 6567 tower operations and 2225 IFR operations per month (see Table 3.7 below). Most of the traffic occurs Wednesday through Friday. Approximately 43% of the traffic is military with T-38, T-37, F-111 and F-15 dominant. Additionally Boeing, Beechcraft, Gulfstream and Cessna Aircraft Companies use the air park to conduct aircraft certification testing. Lufthansa Airlines conducts Boeing 707 and DC-10 crew training. The Military Airlift Command (MAC) and NASA perform practice approaches with C-5A and Boeing 747 aircraft. A landing zone, constructed by the New Mexico Air National Guard (NMANG) for C-130 and helicopter assault landings, is located southeast and parallel to Runway 21.

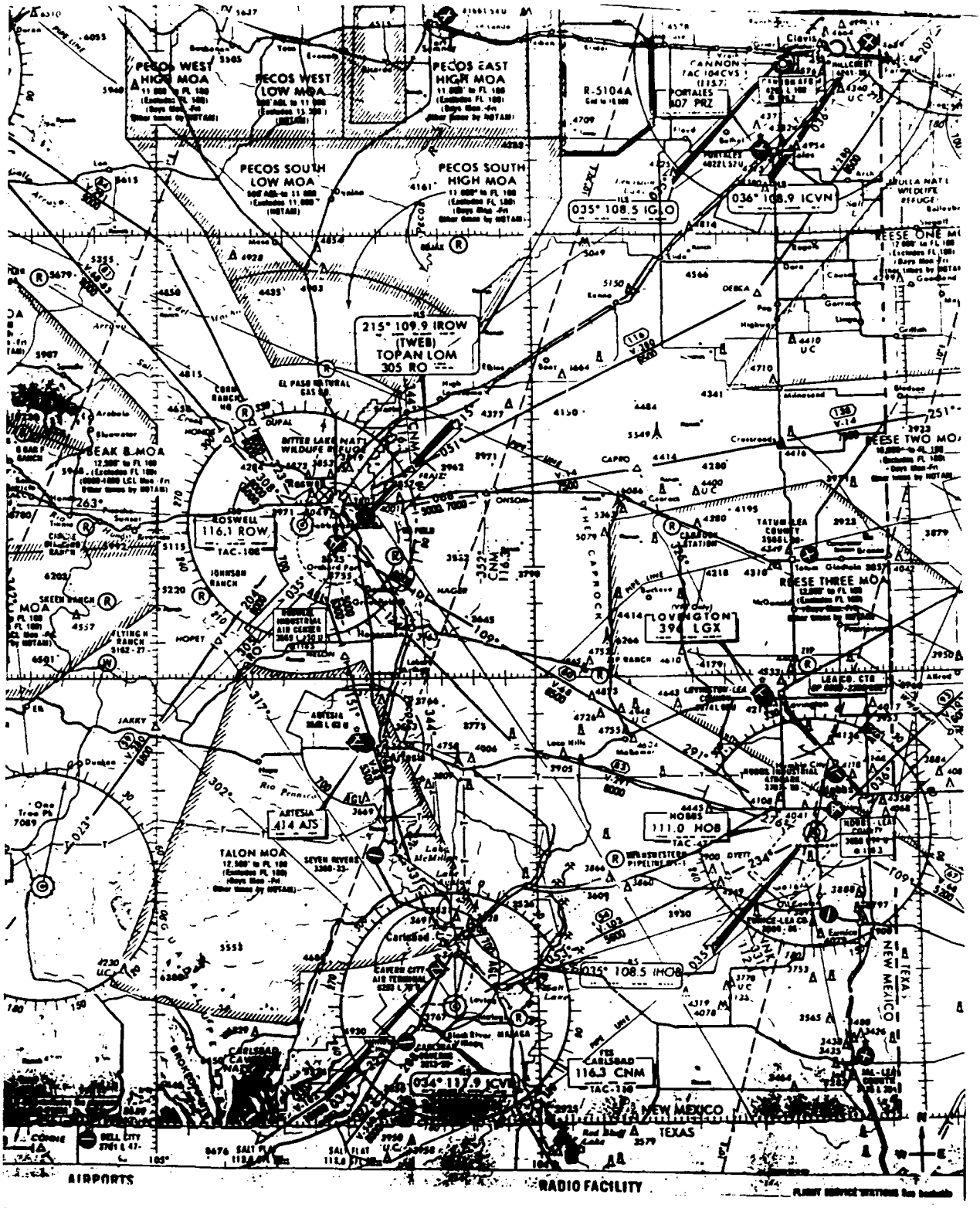

FIGURE 3.4: AIRSPACE UTILIZATION

Table 3.7: Roswell Monthly Tower Traffic

Total Landings/Take-offs (LTO)	3521
General Aviation	1911
Military	742
Air Transport	868
Total Touch & Go (TGO)	4513
Civil	1444
Military	3069
Misc Tower Ops	758
TOTAL	8792

Source: FAA Tower, Roswell IAP, 1989

Approximately 70% of the military TGOs are performed by T-38 with The remainder equally divided among F-15, T-37, F-111, F-100, F-106 (target drones) and misc. Distribution of the military LTOs is the same as that for the TGOs. General aviation operations are primarily light aircraft such as Cessna, Beechcraft, Gulfstream etc. Specifics for air transport operations are not available but they consist of jet and propellor aircraft to include 2xC-5, 8x747/DC-10 a month and approximately 80 Boeing 727/737 a month. Civil aircraft TGOs are virtually all light aircraft except for approximately 30 Lufthansa B-747/DC-10 and a similar number of NASA B747 TGOs.

3.11 Airspace & Ground Safety.

The airspace comprising the ROI is used extensively by military and civilian aircraft. Concentrations of high performance military aircraft, performing complex manuevers during air combat training, create a high potential for mid-air collisions. Careful scheduling of all flights within the controlled airspaces is conducted by the responsible agencies in an attempt to minimize the risk. In addition, the use of radar and "see and avoid" procedures are encouraged. Movement of personnel and equipment within the flightline area of the air park is controlled by the tower which is responsible for that aspect of ground safety.

4.0 Environmental Consequences.

The proposed action involves deployment of personnel to, and aircraft operations at, Roswell Industrial Air Park, Roswell, New Mexico. Aircraft transiting between the air park and the low-level military routes used for exercise flight operations would fly high enough, i.e. in excess of 3000 feet AGL, to

preclude the likelihood of environmental impacts. Proposed flight operations on the low-level military training routes and at the TFWC Range Complex and UTTR are addressed as part of their respective environmental assessments. This analysis is, therefore, limited to consideration of the potential environmental impacts of actions directly related to the deployment of personnel and equipment to Roswell Industrial Air Park, ie. the construction activities; aircraft flight operations to include landing, engine run-ups, take-offs and airfield approaches; and personnel deployment. In geographic terms, this equates to consideration of the air park itself, and the twenty mile radius around the air park potentially subject to low-level overflights.

4.1 Impacts to Earth Resources

No known geologic hazards exist in the vicinity of Roswell Industrial Air Park. In addition, actions such as those proposed, ie aircraft operations, deployment of personnel,and fuel storage, do not constitute geologic hazards. Therefore, no impacts to earth geology are anticipated.

4.2 Impacts to Water Resources.

Hydrologic impacts can occur as a result of accidental introduction of toxic or otherwise hazardous or pollutant material into ground or surface water. Erosion due to uncontrolled runoff from construction activities or runoff from material storage sites and other exposed areas can carry pollutants in the form of sediment loads that may effect drainage configurations and/or plant and animal habitat. Increased concentrations of sediment and other oxygen consuming materials can adversely effect water quality.

There are no permanent or intermitent streams, ponds or lakes in the area of the proposed leasing and construction sites and, as a result, no impacts to surface water are anticipated. The aircraft refueling operations planned for the proposed action constitute the primary potential source of impacts to ground water. Fuel storage bladders are lined with a rubber impregnated material and the proposed fuel storage area berm would be lined with polyurethane. Defueling trucks would recover most spilled fuel and the likelihood of fuel reaching ground water is minimal. Contact with the State of New Mexico indicates no environmental permits of any kind are required. No impact to ground water is anticipated.

4.3 Air Quality Impacts.

Construction, vehicular traffic and aircraft associated with the proposed action would contribute to area carbon monoxide (CO), hydrocarbon's (HC), nitrogen oxides (NOx), particulates (PM) and sulpher dioxide (SOx) levels.

Construction would be limited in scope, duration and geographic area (ie the five acre fuel bladder site). Localized degradation of air quality may result from increases in airborne dust levels during ground clearing operations and releases from temporary storage piles. Impacts could also result from engine emissions associated with construction. Given the limited nature of proposed contruction activities, any resultant impacts to air quality are expected to be minor and short-term.

Eleven vehicles would be deployed as part of the proposed action. Given the short term nature of the proposal and the small number of vehicles involved, no short or long term impact to the area's air quality is anticipated.

Flight operations would produce changes in pollutant emission rates and air quality at the air park. Aircraft landings, take-offs and engine runs would be the primary contributors to pollutant levels. Estimates of the level of emissions per deployment are listed in Table 4.1 below. The New Mexico Air Quality Bureau, when contacted regarding potential air quality impacts of the the proposed action, concurred with this office's view that given the relatively low-level of emissions, short duration of the deployments, and excellent dispersion patterns, ambient air quality would not be affected.

Table 4.1: Projected SAC Aircraft Emissions

Pollutant	SAC Aircraft Emissions
CO	46992 lb
HC	53727 lb
NO_x	6205 lb
PM	929 lb
SO_x	1025 lb

Source: Aircraft Emissions Estimator, USAF, 1985

4.4 Impacts to Biological Resources

Impacts to biological resources result from damage to plant and wildlife habitat from construction activity, disturbance of plant and animal habitat by increased levels of human presence, disturbance of wildlife by increased noise levels and mid-air collisions between birds and aircraft.

4.4.1 Impacts to Wildlife.

The startle effect of noise and the physical disturbance of habitat are the primary potential sources of impacts to wildlife. Some small wildlife species might be displaced during construction and personnel deployments, which may or may not return upon completion of the proposed action. No larger species have been identified as inhabiting or transiting the proposed

site. No impact to the habitat of large species is anticipated and any impact to the habitat of smaller species would be minimal. The New Mexico Department of Fish & Game concurs.

Noise and visual intrusion by aircraft could startle wildlife populations in the area. Most identified wildlife populations live outside of the area that would be subjected to low-level overflights. Antelope populations would be overflown by SAC aircraft but it is the opinion of New Mexico Fish & Game Department that the antelope are acclimated to aircraft noise by the current flight operations. Migratory waterfowl and raptor populations within Bitter Lake NWR live alongside the glide path to Runway 21 at a point where aircraft would be approximately 10 miles out from the runway and at altitudes in excess of 3000 feet AGL. Aircraft at that altitude are not expected to impact wildlife. In addition, the proposed deployments are scheduled to occur well outside of the bird migrations, and, as a result encounters with these species are highly unlikely. No impact to wildlife is anticipated to result from the proposed action.

4.4.2 Impacts to Vegetation.

Impacts to vegetation would be limited to byproducts of construction activity and personnel deployment. No significant flora populations have been identified at the proposed site. The proposed leasing sites and construction site are on previously disturbed land and have sparse vegetation. No impact to vegetation is anticipated.

4.4.3 Rare and Threatened/Endangered Species Impacts.

Under the Endangered Species Act, potential impacts to federally listed species must be considered under the NEPA. If potential impacts are identified, consultation with the U.S. Fish & Wildlife Service must be initiated. Construction activities and personnel deployments associated with the proposed action would be located in areas that have been previously disturbed and are not habitat for any state or federally listed rare, threatened or endangered species. No impact to listed species is anticipated to result from the contruction or personnel deployment phases of the proposed action.

Most species potentially overflown by SAC aircraft during the flying phase of the proposed action would be overflown at altitudes in excess of 3000 feet AGL. This is well in excess of the 2000 feet minimum vertical or horizonal separation generally accepted as being adequate to ensure no impact to even the most sensitive species (Ellis, 1981). Therefore, only those species native to or migrant through the area falling within 20 miles of it (i.e. that area potentially subject to overflights below 3000 feet AGL) are addressed here.

American Bald Eagle. The bald eagle is a migratory species

that potentially uses the Rio Hondo and Pecos River as a winter roost. No nesting pairs have been identified within the area subject to low-level overflights under the proposed. Given the lack of nesting pairs in the area of the proposed action and the remoteness of the winter roosts in relation to aircraft flight paths, no impact is anticipated.

Least Tern. There are 20 least tern nests within that portion of Bitter Lakes NWR immediately north of the approach path to Runway 21. The refuge manager is of the opinion that the colony has been acclimated to noise by current aircraft, vehicular and human intrusion and the additional flights represent no impact. In addition most aircraft taking-off from the air park depart to the southeast, away from the refuge. Aircraft landing at the air park do overfly the area immediately south of the refuge but at an altitude high enough to preclude impacts (i.e. above 3000 feet AGL). No significant impact is anticipated.

Peregrine Falcon. The peregrine falcon is an occasional migrant and no breeding pairs have been identified in the area. No impact to this species is anticipated.

In addition to the above federally listed species several state listed species occur in the area potentially overflown at low-level by proposed flights. McCown's longspur and Baird's sparrow do not nest in the area, and are migrants only, and their reproductive rates would not be effected by the proposed action. The Mississippi kite and Bell's vireo breeding range includes the area potentially overflown at low-altitude but no breeding pairs have been identified in the area. Several amphibians, reptiles and mullusks inhabit the area potentially overflown at low-level but scoping with the New Mexico Fish & Game Department indicates no impacts to these species is anticipated.

4.4.4 Bird Airstrike Hazard (BASH)

Bird strikes are a hazard to low-level and airfield flight operations. This is particularly true during the two annual (March thru May and September thru December) migrations of waterfowl, raptors, migratory large birds and migratory small birds. Migratory birds tend to fly at altitudes below 3000 feet AGL and within migratory flyways (USAF, 1988). As a result the bird airstrike hazard is greatest at low altitudes and within these corridors or near the wetlands where birds stop during their migrations.

The U.S.A.F. BASH team is the Air Force point of contact for the development of bird avoidance models. The team maintains a computer database which is used for indepth analysis of the bird airstrike potential associated with Air Force flight operations. This database is used to prepare Bird Avoidance Models (BAM) which graphically depict bird airstrike potential by time of year and time of day. The scale along the vertical axis of the graph

depicts the number of birds likely to be encountered per 1.15 statute miles of flight. The scale along the horizontal axis depicts the time of year. The BAM for the proposed action is depicted in Figure 4.1 below.

The model indicates the bird air strike potential for flight activity associated with the proposed action is extremely low. It peaks between the hours of 10 AM and 3 PM and decreases almost to zero at night.

4.5 Impacts to Visual Resources

Comanche Hill , a VRM class II resource (alterations to the basic visual quality should be avoided), lies directly below the glide path to Runway 21, the main runway at the air park. Aircraft at that point in their airfield approach would be approximately 11 miles out from the runway and at altitudes greater than 3000 feet AGL. Given the large size of the B-52 and KC-135 aircraft, it is assumed they would represent a greater per incident visual intrusion than the relatively small T-38 and other tactical aircraft that are dominant users of the air park. They would most likely represent a per incident visual intrusion similar to that of the large commercial aircraft (B707, B747, DC-10 etc) that currently use the air park. Given the substantial aircraft overflights the area already experiences, and the relatively high altitude the hill would be overflown, it is unlikely the small number, and short duration of the overflights represented by the proposed action, would alter the basic visual quality of the area beyond that already accomplished by current flight activity. Therefore no impact to the area's visual quality is anticipated.

4.6 Impacts to Land Use.

The New Mexico Cooperative Extension Service was contacted regarding the potential impacts of the proposed action. Their major concerns were potential impacts by low-level overflights of range calving, sheep shearing, lambing, goat shearing and dairy cattle operations. All but the dairy operations occur between mid-March and mid-April and will have been completed before the proposed deployment. The dairy cattle operations vulnerable to overflight generated noise intrusion are cleared by a minimum of one mile and would not be subjected to increased noise levels or overflights. All ranches, medical facilities (to include the New Mexico Rehabilitation Center at Roswell Industrial Air Park) lie outside the area subject to noise levels in excess of Ldn 65 dB. East Grand Plains School lies within 1.25 miles Runway 03/21's glide path but outside the area subject to noise levels in excess of Ldn 65 dB. The university grounds at the air park also lie outside the area impacted by air operations generated noise levels. Residential areas, with the exception of South Spring Acres, in and around Roswell remain outside the areas exposed to Ldn 65 dB or higher by air park flight operations and, as a

ROSWELL IAP

Entire Area

Bird Avoidance Model

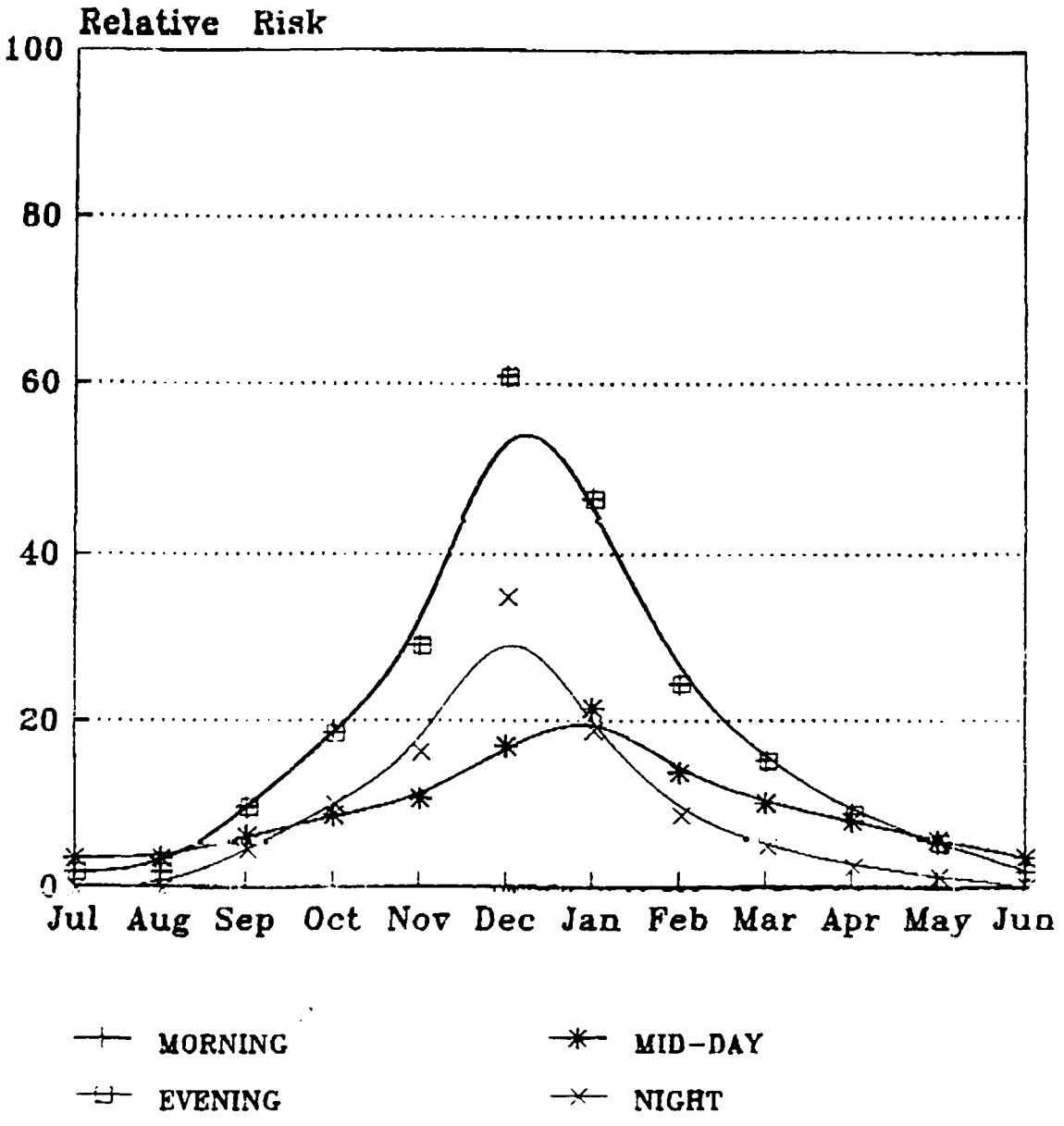

FIGURE 4.1: BIRD AIRSTRIKE HAZARD

result, would not be adversely affected by the proposed action.

South Spring Acres, previously subject to Ldn 64 dB, now falls within the Ldn 65 dB contour, and as such would be exposed to Ldn levels of approximately 67 dB, which are marginally above the Ldn 65 dB maximum recommended by the federal government (see para 3.8) as suitable for residences. Due to the short duration of the flight operations phase of the proposed action, this increase is deemed insignificant. Therefore the change in ambient noise levels at South Springs Acres is not considered significant. Ldn levels in the industrial area of the air park increase approximately three dB to Ldn 68 dB. This increase is not sufficient to effect the area's status as an industrially zoned area and is therefore not considered significant. All other areas subjected to noise levels in excess of Ldn 65 are unpopulated rangeland. No significant impacts to land use are anticipated.

4.7 Impacts to Cultural Resources

The focus of the following section is on the potential impacts to cultural resources resulting from noise and visual intrusion, construction or other human physical presence, or low-level overflight induced vibrations.

4.7.1 Impacts to National Register Sites.

No National Register sites are located within areas identified as subject to construction activities, human intrusion, low-level overflights or airfield operations. No known archeological or historic resources lie within the area proposed for construction or personnel deployment. Should any artifacts be discovered, all work will cease and the appropriate historical agency will be notified. No impacts to current or proposed archeological, historic or National Register sites is anticipated. The New Mexico Historic Preservation Division concurs.

4.7.2 Impacts to Federally Protected Lands.

Of the federally protected lands identified as lying within the ROI, only Bitter Lakes NWR lies within that area identified as potentially subject to low-level flights. The refuge's location immediately to the right of the airfield approach glide path and 10.5 miles out from the runway makes it likely that it would be subject to increased noise levels and visual intrusion by the proposed flight operations. The visual intrusion would be limited due to the fact the aircraft at that point would be above 3000 feet AGL. The increase in ambient noise level is minimal (see paragraph 6.8) and ambient noise levels remain well below Ldn 65 dB. No impact to federally protected land is anticipated.

4.7.3 Impacts to State Protected Lands.

Of the state protected lands considered in this assessment, only Bottomless Lakes State Park lies within the area potentially subject to low-level flight operations. The park lies approximately 11.5 miles east of Roswell Industrial Air Park and approximately 4 miles south of the glidepath to Runway 21. Aircraft at that distance would not visually intrude on the park and no increase in the state park's ambient noise levels is anticipated. No impact to state protected lands is anticipated.

4.7.4 Impacts to Wetlands.

Impacts to wetlands result from construction activities and other kinds of direct physical intrusion. No wetlands lie within those areas considered for construction activity or deployment of personnel. Therefore no impacts to wetlands are anticipated.

4.8 Impacts to Noise Levels.

Figure 4.2 and Figure 4.2a graphically depicts noise level changes projected to occur as a result of the proposed action. The air terminal area, previously subjected to approximately Ldn 77 dB, would be exposed to Ldn 80 dB by the cumulative effects of the proposed flight activity. The industrial area (east) of the air park would experience approximately a 4 dB increase (from Ldn 78 dB to Ldn 82 dB). This is well within the tolerable noise levels for industrial areas. The industrial area (west) reamins outside the Ldn 65 dB contour. Ldn 80-84 dB, previously confined to the air park, now extend 6,000 feet beyond air park boundaries to the southwest. Ldn 75-79 dB levels now extend 17,000 feet southwest and 6,000 feet northeast of the air park. This represents a 160% linear increase in area exposed south of the air park and introduction of 75 dB to areas north of the air park. Ldn 70-74 dB affected areas now extend 33,000 feet southwest (a 120% linear increase), 10,000 feet northeast (a 42% linear increase). Ldn 65-69 dB affected areas now extend 44,000 feet southwest (a 79% linear increase), 28,000 feet northeast toward South Spring Creek (a 47% increase). Noise levels to the north and northeast of the air park (i.e. toward the city of Roswell) would experience increases of about 3 dB. In the case of the South Spring Acres trailer park, the increase would be enough to increase ambient noise levels from Ldn 64 dB to Ldn 67 dB. The new noise level would cause the ambient noise levels at the trailer park to exceed federal guidelines (i.e. Ldn 65 dB) set for residential areas. Short-term increases at this level are not considered significant.

Engine runs performed as part of the proposed deployment would be performed on an operational aircraft parking apron. The nearest buildings to the proposed engine run site are the civil air terminal, the main aircraft hangers and the control tower. The nearest of these buildings, the control tower, is one thousand feet away from the SAC parking apron. Persons located in these areas would either be remote enough from the engine runs, or would be shielded from the noise, by the walls of the buildings.

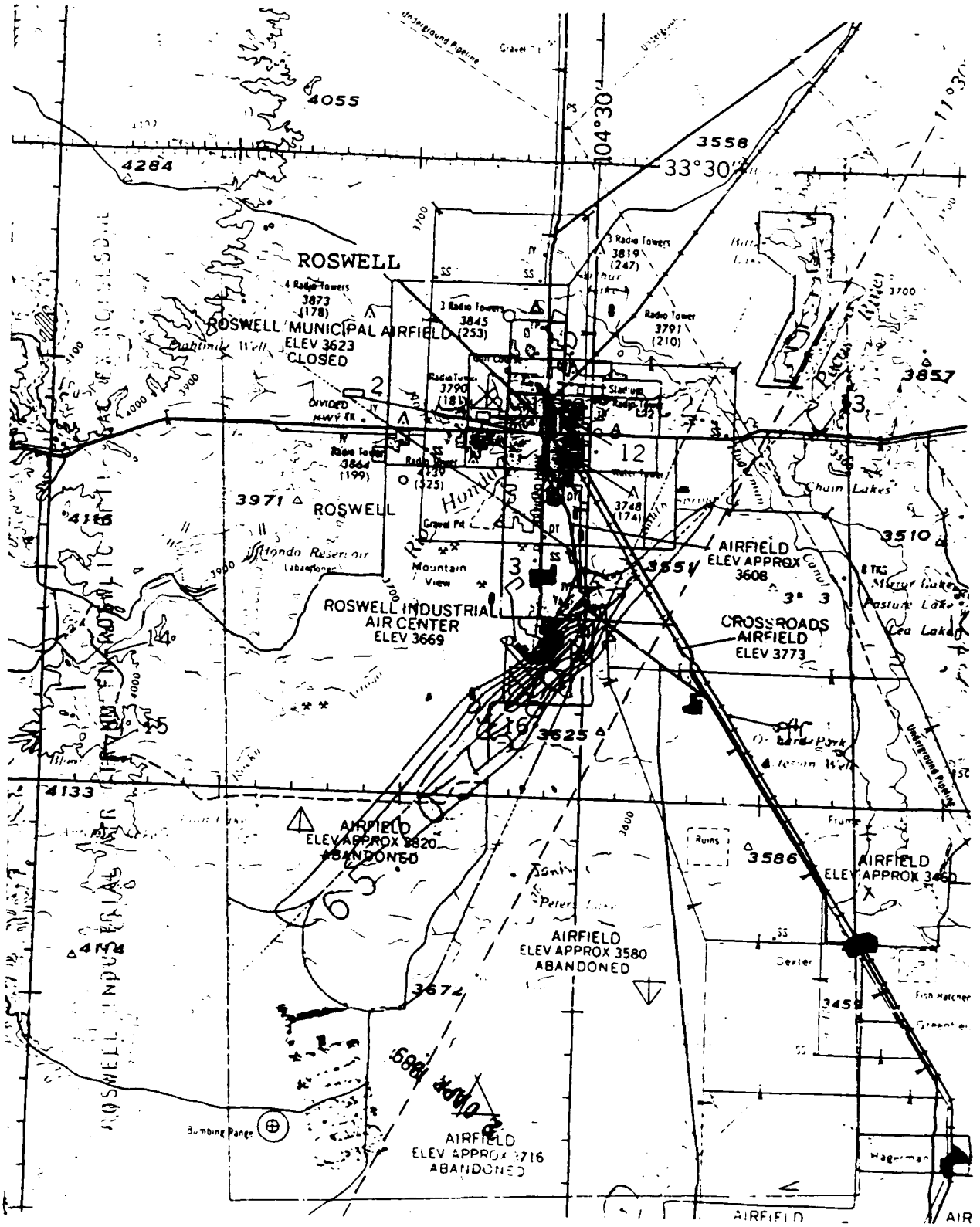

FIGURE 4.2: DEPLOYMENT NOISE CONTOURS

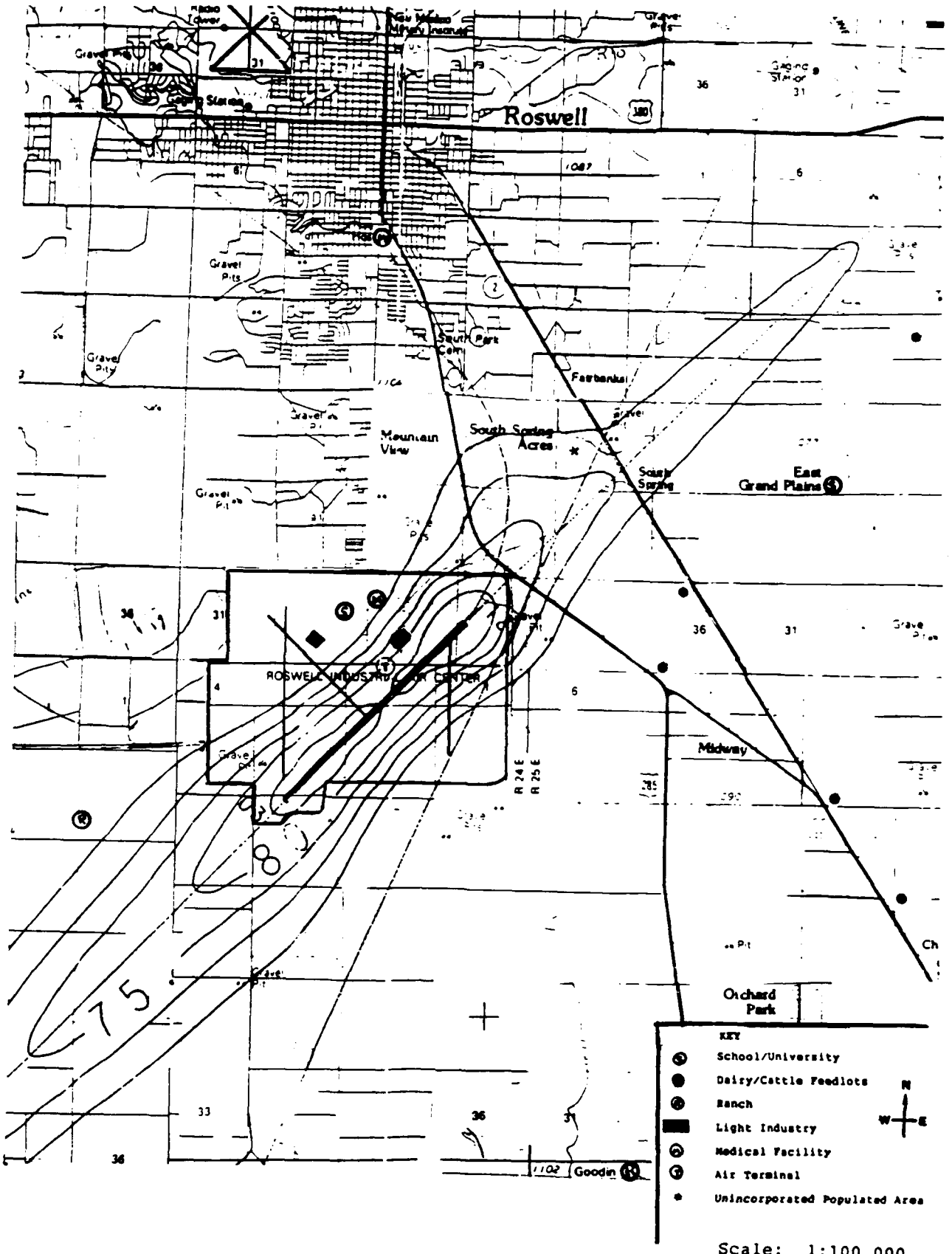

FIGURE 4.2A: DEPLOYMENT NOISE CONTOURS

Although the geographic area affected by increased noise levels would be substantial, no noise sensitive receptors, to include but restricted to schools, hospitals, dairy cattle operations, or wildlife habitat would be affected by the proposed action. Increases in the only populated area affected, the South Spring Acres trailer park are short-term and marginal and are not substantial enough to be significant. Therefore, although noise level increases occur, they are not considered significant.

4.9 Impacts to Socioeconomics.

Socioeconomic impacts resulting from actions such as that proposed are traditionally short term and limited to the infusion of modest amounts of cash into the local economy. The Economic Impact Forecasting System was used to project economic impacts of the proposed action. Accurate projections for the type of action proposed is difficult because of the impossibility of projecting how much money would be spent by deployed personnel. For purposes of this analysis, it is assumed that, after meeting all financial obligations at their home base, 10% of member's base pay (to include flight pay) would be available for personal expenses incurred during the deployment. Food and quarters would be supplied by the government and, as a result, payments for temporary duty allowances is discounted. Housing and food allowance are discounted because it is assumed they would be spent at the home base. The $25,000 dollar site leasing fee is included as change in local expenditures. A summary of the forecast's findings are listed in Table 4 and the forecast is listed at Appendix H. Statistics are per deployment.

Table 4.2: Training Impact Forecast

	Chaves County	ROI
Change in Local Sales Volume	$52,000	$55,000
Change in Employment	0	1
Direct Income	$2,000	$3,000
Total Income (Place of Work)	$46,000	$ 47,000
Total Income (Place of Residence)	$133,000	$138,000
Government Expenditures	0	0
Government Revenues	$8,000	$ 7,000
Net Government	$7,000	$ 7,000

Source: US Army Corp of Engineers EIFS, 1989

4.9.1 Impacts on the Population.

Personnel deployments to Roswell Industrial Air Park would be transitory in nature and would have no impact on the population.

4.9.2 Impacts to Public Acceptance.

The lack of any definitive baseline data regarding public acceptance of air park operations makes accurate assessment of impacts to public acceptance difficult. Computations of current annoyance levels using the Noisemap Model (USAF, 1989) suggest that 26 persons are highly annoyed by current flight operations. The Noisemap Model predicts, at the proposed rate of 40 flights a day (30 current flights plus 10 SAC flights), 19% of the people overflown would be highly annoyed by the proposed flight activity. The working population located at the air park, because they work in a area zoned for industry and are assumed to be climatized to higher noise levels, were discounted in calculating annoyance. In addition, they spend most of their time indoors working in building that, by law, must be shielded from the high noise levels produced by airport operations. The permanent population exposed to increased noise levels generated by the proposed flight activity is 200 (the population of South Spring Acres). At South Spring Acres, ambient noise levels would increase from Ldn 64 dB to Ldn 67 dB. Short-term increases such as those experienced under the proposed action are not considered significant and changes in public annoyance levels are unlikely. Changes in public annoyance, if they do occur would be limited to the 19% the Noisemap Model predicts. This represents a 5% increase to a total of 38 persons. Although the percentage of persons highly annoyed would exceed the 15% recommended by the federal government as a benchmark figure, the total persons annoyed remains small. Impacts to public acceptance are minimal.

4.9.3 Impacts to Employment.

The proposed action is expected to have no long-term impact on local or regional employment. The construction activity proposed is small scale and would easily be handled by local contractors using existing, in place human and material resources.

4.9.4 Impacts to Utilities.

The city of Roswell currently operates at less than 3/4 of its water supply's capacity during summer months. The addition of 437 personnel for two three week deployments is not expected to strain resources. Waste disposal at the air park is contracted out to Waste Disposal of New Mexico Inc. Some of the deployment produced liquid (i.e. human) waste could be handled by the buildings' septic systems. Some liquid, and all solid waste, however would require removal by truck thereby placing additional demands on waste removal/disposal facilities. The city engineer has estimated that the city waste disposal systems are operation at less than 25% capacity and could easily handle any deployment produced increases. Demands for electricity are not likely to exceed the capacity of the local power company. The natural gas company estimates each deployment would require 1000 mega cubic feet which is well within their capacity. No negative impacts to utilities are anticipated. A modest positive increase in

revenues is anticipated.

4.9.5 Impacts to Transportation.

Transportation to and from the deployment will be provided by the Air Force and limited primarily to air transport. Civil air, road and air freight, rail and bus services would not be used as part of the deployment. Vehicular traffic associated with the proposed deployment would be limited to air park and supply/fuel truck convoys traveling between Holloman AFB and Roswell. Air Force vehicles in transit between the air park and Holloman AFB could produce traffic congestion if their movements coincided with periods of heavy civilian traffic. Fuel vehicles moving through the city center represent an increased safety risk. It is possible that, for recreational purposes, personnel would leave the air park grounds but these trips would occur during off-peak traffic hours and be limited in duration and number of persons. No impact to the area transportation facilities is anticipated.

4.9.6 Impacts to Communications.

Deployments of the type proposed historically have not impacted communications. Some modest increase in use of the area's long distance telephone service is anticipated but the increase is not expected to impact the quality or availability of service.

4.9.7 Impacts to Housing.

Personnel deployed as part of the proposed action would billet within the confines of the air park (i.e. Building 1166 and a tent complex erected on its associated fenced area). Area hotel/motel rooms would not be used nor would homes be leased or bought. No impact to area housing is anticipated.

4.9.8 Impacts to Medical Facilities.

Minor routine medical care for deployed personnel would be provided by the flight surgeon who accompany each deployment. Area hospitals would be requested to provide emergency, nonroutine care only. Area medical facilities are currently operating well below their capacity. They are equipped to handle all routine medical and surgical emergencies. Non-routine care is readily available via medivac. No area medical facilities would be exposed to increased noise levels above Ldn 65 dB by the proposed action and Ldn levels in their vicinity remain below the levels recommended for sensitive land uses such as hospitals. No impact to area medical facilities is anticipated.

4.9.9 Impacts to Recreation/Community Service Facilities.

Personnel deployed as part of the proposed action would work long

hours and have limited transportation available. As a result the demands they place on area recreational facilities would be limited to a modest infusion of money into the local economy. No significant impacts to area recreational/community facilities are anticipated.

4.10 Impacts to Airspace Utilization.

The addition of 100 landing/take-offs cycles per deployment represents a 11.3% increase over current levels. This increase is well within the air park's capacity (Swenson, 1989). The FAA control tower manager expressed concern that if all ten flights scheduled for each day, were to arrive/depart at the same time the impact could be substantial. The likelihood of this occuring, however, is highly unlikely because flights to the range complexs scheduled to be used for deployment missions, are normally equally divided between morning and afternoon missions. The proposed use of areas adjacent to the southeast end of Runway 12/30 as an aircraft parking apron would reduce its availability for flight operations but not to a degree sufficient enough to prevent use of the runway. The runway is currently used for take-offs by commercial aircraft and emergency landings by general aviation. Some of the aircraft that would otherwise use Runway 12/30 would have to be diverted to other runways but only 10% of the flights or less would be so affected. No significant impacts to airspace utilization are anticipated.

4.11 Impacts to Airspace & Ground Safety.

Air traffic within the ROI is under FAA ARTCC control. Policies and procedures, developed by the FAA and the military commands to maximize safety include: extensive use of radar, use of "see and avoid" procedures, and avoidance of congested areas such as active MOAs and ranges. SAC aircrews would comply with all safety procedures and policies at all times. The proposed action is not expected to impact airspace safety.

Potential ground safety concerns include the increased vehicular and pedestrian traffic in the area of air park runways and taxiways. The use of Buildings 1770 & 1776 would necessitate increased caution by aircraft using Taxiway C but would not close the taxiway. Personnel and vehicles transiting the area of Bldg 1116 would have to cross the end of active Runway 21/03. Vehicular traffic in the flight line area of the air park would comply with both local and SAC policies regarding these matters. Movements around the air park would be under FAA tower personnel control. No significant impacts to ground safety are anticipated.

5.0 Findings

This environmental assessment has examined the potential environmental impacts of the proposed SAC use of Roswell

Industrial Air Park as a FOB during July and September 1989 Mighty Force exercises.

Potential impacts of the proposed action are as follows:

Earth Resources. No known geologic hazards exist in the project area. As a result, the proposed action would have no impact on soils or geologic structures.

Water Resources. There is no surface water in those portions of the project area subject to physical intrusion. Measures taken, such as the fuel bladder berm, to contain spillage of hazardous or pollutant materials are adequate to protect against ground water contamination. The proposed action would have no impact on water resources.

Air Quality. The proposed action would increase the levels of pollutants in the ROI. The increase, however, would be short term, quickly dispersed and would not effect the ambient air quality, either over the short or long term, of the area. No significant impact to air quality is expected.

Biological Resources. The proposed action would minimally disturb wildlife and plant habitat and displace some small species. Disturbance to habitat however, would be limited to non-critical areas within Roswell Industrial Air Park that have previously been disturbed, and would be short-term and limited in scope. No large, game, sensitive, threatened or endangered species would be affected. Impacts to biological resources are considered insignificant.

Visual Resources. Areas identified as visual resources under the BLM Visual Resource Management System would be overflown at altitudes greater than 3000 feet AGL. No visual resources not already subjected to overflights would be overflown and those overflown would not be subject to flights below 3000 feet AGL. Impacts to visual resources are not significant.

Land Use. Noise levels and visual intrusion generated by the proposed action would be, with one exception, limited to areas that are either unpopulated, not utilized by noise sensitive land uses, or already zoned in a manner, i.e. industrially zoned, compatible with the increased noise levels. The single exception is the trailer park community of South Spring Acres. Increased noise levels generated by the proposed action in the South Springs Acres area, however, are limited to 3 dB. Short-term increases of that magnitude, although it does represent a change in ambient noise levels of from Ldn 64 Ldn 67 dB, is not considered significant enough to be noticed. No impacts to land use are anticipated.

Cultural Resources. No current, proposed or candidate National

Register sites, or identified archeological sites would be affected by the proposed action. Federal and state protected lands within the Region of Influence are either outside the flight paths of SAC aircraft or would be overflown at altitudes high enough (i.e. above 3000 feet AGL) to preclude impacts. No significant impacts to cultural resources is anticipated.

Noise Levels. Increased noise levels generated by the proposed action, with one exception, would be limited to non-noise sensitive, i.e. unpopulated areas. The 3 dB increase projected for the one populated area affected, South Spring Acres, would be short-term and not great enough to be noticed, and is not considered significant. No significant impact to noise levels is anticipated from the proposed action.

Socioeconomics. No impacts to area populations, employment, communications, housing, or medical facilities are anticipated. A modest short term positive impact to area private and government revenues resulting from purchase of utility services is anticipated. Area recreation and community service facilities would experience a similar increased demand and resultant revenue increase. Modest short term increases in traffic congestion would occur when SAC supply convoys transited Roswell enroute to the air park. Public annoyance would increase as a result of overflights of populated areas of south Roswell by aircraft making visual approaches to Runway 21 from the west. The number of people likely to be highly annoyed, thirty-eight, however remains small and impacts would be short-term. No significant impacts to socioeconomics are anticipated.

Airspace Utilization. Increases in flight activity at Roswell Industrial Air Park resulting from the proposed action are short term and fall well within the capacity of the air park. No impacts to airspace utilization are expected as a result of the proposed action.

Airspace & Ground Safety. Changes in flight and ground activity resulting from implementation of the proposed action would require increased levels of air and vehicular traffic in the flight operations areas of the air park. The increases fall well within the local FAA and air park authorities traffic control capacity. No significant impacts to air or ground safety are anticipated.

6.0 Mitigations and Special Operations Procedures

Per agreement with 8AF/DOO, Air Force aircraft would use only those parking aprons adjacent to Runway 12/30 that are southeast of Taxiway C. This would ensure the runway remains available for flight operations. Air Force ground vehicles transiting between the parking apron, Buildings 1770 & 1776 and the fuel bladder sites would avoid Taxiway C and that portion of Runway 12/30 northwest of Taxiway C. Instead they would be routed along the

abandoned Runway designated 1438.

In order to minimize the potential for fuel contamination of the soil, the fuel bladder site would be equipped with an earthen berm constructed to Air Force specifications and lined with a polyurethane liner as per Air Force specifications. If fuel spills occured, the spillage would be recovered by defueling trucks.

Supply vehicles transiting between Roswell Industrial Air Park and Holloman AFB would use the west gate and avoid peak traffic hours. This would minimize any increases to traffic congestion in the Roswell area resulting from the proposed action.

The potential for introduction of particulate matter (dust) into the atmosphere as a result of the proposed construction activities would be reduced by the use of water to wet down construction sites and minimizing vehicular traffic on unpaved surfaces.

No special operating procedures have been identified for the proposed action.

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Acronyms and Abbreviations

Acronyms and Abbreviations

AFB	Air Force Base
AFR	Air Force Regulation
AFSC	Air Force Systems Command
AGL	above ground level
AICUZ	Air Installation Compatible Use Zone
ARTCC	Air Route Traffic Control Center
BAM	Bird Airstrike Model
BASH	bird aircraft strike hazard
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHABA	Committee on Hearing, Bioacoustics and Biomechanics
CO	Carbon Monoxide
dB	decibel
DOD	Department of Defense
dBA	decibel adjusted to the A scale
DONO	Office of Airspace Management (SAC)
DOT	Department of Transportation
EA	environmental assessment
EIAP	environmental impact analysis process
EPA	Environmental Protection Agency
FAA	Federal Aviation Agency
FLIP	Flight Information Publication
FOB	Forward Operating Base
FONSI	finding of no significant impact
HC	hydrocarbons
HUD	Housing and Urban Development , Department of
IFR	instrument flight rules
IR	instrument route
L_{dn}	day-night sound level measured in dBA
L_{dnmr}	monthly day-night sound level measured in dBA
LTO	landing & take-off
MAC	Military Aircraft Command
MOA	military operating area (aircraft)
MTR	military training route (aircraft)
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMANG	New Mexico Air National Guard
NO_x	nitrogen oxides
ORNL	Oak Ridge National Laboratory
PL	public law
PM	particulate matter
ppm	parts per million
ROI	region of influence
RCO	Range Control Officer
RCRA.....	Resource Conservation and Recovery Act
SAC	Strategic Air Command
SEL	sound exposure level
SO_x	sulpher dioxides
SUA	special use airspace
TAC	Tactical Air Command

TGO	touch & go
TTS	temporary threshold shift
TFWC	Tactical Fighter Weapons Center
USAF	United States Air Force
USC	United States Code
VA	Veterans Administration
VRM	visual resource management (system)
VFR	visual flight rules

Persons and Agencies Contacted

Persons and Agencies Contacted

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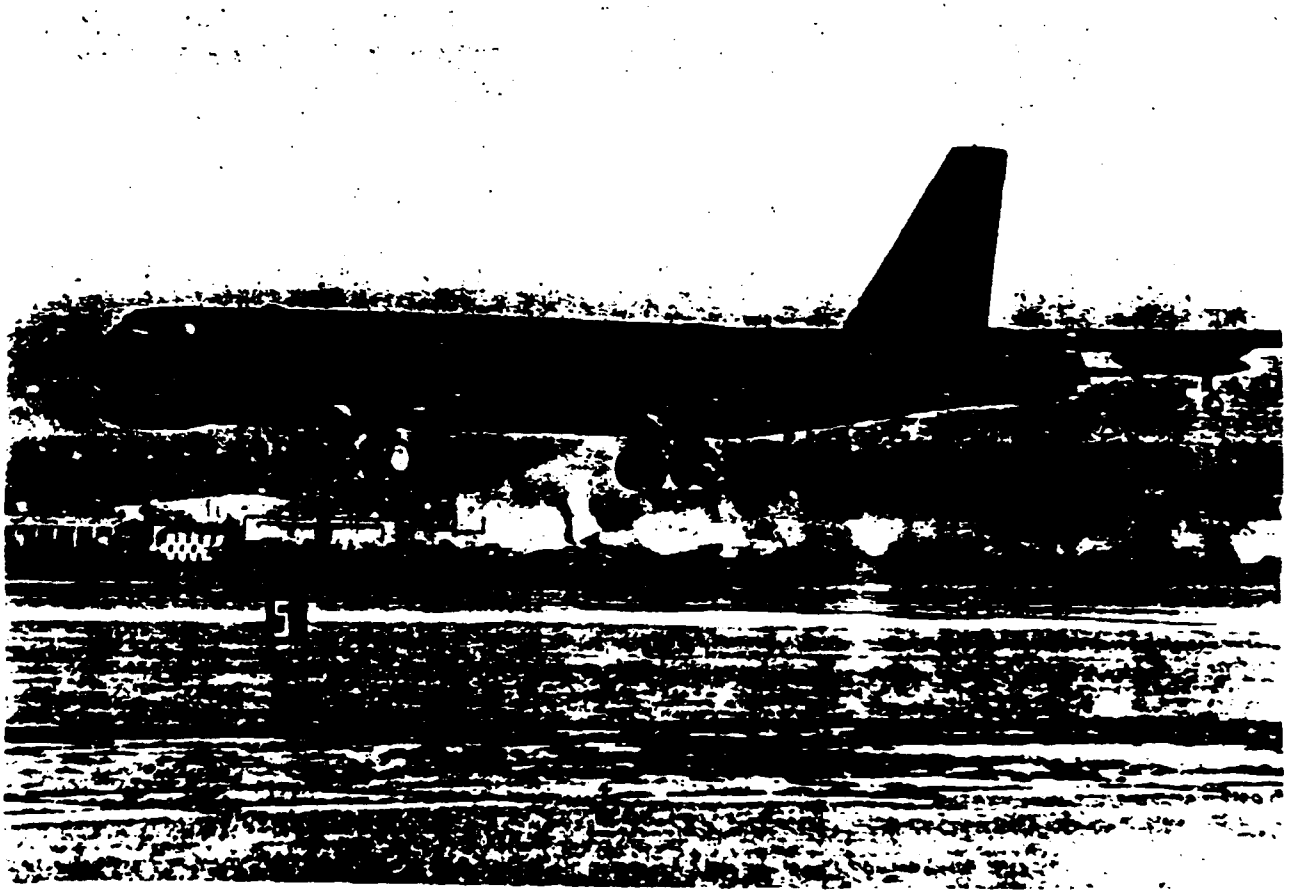
Appendix A: Aircraft Descriptions

Fact Sheet

United States Air Force

HEADQUARTERS STRATEGIC AIR COMMAND, OFFICE OF PUBLIC AFFAIRS,
OFFUTT AFB, NE 68113 TEL. (402) 294-2067

86-14



B-52 STRATOFORTRESS

The heavyweight among Strategic Air Command's bomber force is the Boeing B-52 Stratofortress. This aircraft is capable of high subsonic speeds and can fly at altitudes above 50,000 feet.

The B-52 prototype first flew in April 1952, and SAC received its first B-52 in June 1955. The last B-52 -- the eighth version of the aircraft, an H model -- came off the production line in October 1962. SAC currently has the B-52G and B-52H models in its inventory of approximately 250 aircraft. These models, among America's first missile carrying bombers, can carry up to 20 short-range attack missiles. While eight attack missiles can be carried in the internal weapons bay, another 12 can be carried under the wings. A portion of the B-52Gs and all of the B-52Hs are also being modified to carry airlaunched cruise missiles.

Designed as a nuclear bomber, the B-52 also carries conventional bombs.

-more-

This flexibility to perform a dual role was dramatically highlighted by conventional operations in Southeast Asia. There, the B-52s provided direct air support, interdiction, and strategic bombing missions. In addition, they proved the effectiveness of the Stratofortress to successfully penetrate heavy enemy defenses.

In support of the U.S. Navy's sea control operations, B-52s perform maritime missions. Some aircrews are trained to interdict enemy sea power, protect shipping, and conduct aerial minelaying operations. The B-52's capabilities also include sea surveillance and surface ship air interdiction. Air interdiction is performed by Harpoon-modified B-52s stationed at Loring AFB, Maine and Andersen AFB, Guam.

Each of the eight jet engines on the B-52G develops up to 13,750 pounds of thrust or a total of approximately 104,000 pounds of power. The turbofan engines of the B-52H produce some 17,000 pounds of thrust per engine, significantly increasing this model's performance.

The B-52G has an unrefueled range of more than 7,300 miles, while the H model, with more fuel efficient engines, has an unrefueled range of more than 8,800 miles. Aerial refueling gives both models a range limited only by the endurance of their crews.

Although the B-52G and H models, look almost the same as earlier models on the outside, they are quite different. The primary external differences are a shortened tail and the movement of the gunner's station from the tail to the forward section of the aircraft. In all models, the tail guns are aimed through radar systems mounted in the tail.

In addition, the nose area of the G and H models have a bubbled configuration following installation of a low level viewing system. These two models have a new offensive avionics system replacing older bombing and navigation equipment.

Crew positions in both models are pilot, copilot, radar navigator, navigator, electronic warfare officer and aerial gunner.

-more-

SPECIFICATIONS

	B-52G	B-52H
Takeoff weight	488,000 lbs	488,000 lbs
Speed	650 mph maximum	650 mph maximum
Number of engines	eight	eight
Thrust per engine	up to 13,750 lbs	up to 17,000 lbs
Unrefueled range	more than 7,300 miles	more than 8,800 miles
Altitude	above 50,000 feet	above 50,000 feet
Armament	four 50-cal machine guns	20-mm Gatling type cannon
Bomb load	more than 20,000 lbs	more than 20,000 lbs
Crew	six	six
*Unit flyaway cost	$46.5 million	$51.2 million
Dimensions		
Span	185 feet	185 feet
Sweepback	36 degrees	36 degrees
Length	160 feet	159 feet
Height	40 feet	40 feet

*Aircraft unit flyaway cost represents the approximate original cost of out-of-production and in-production aircraft in terms of today's "constant" dollars. Additionally, the factors include modification costs resulting in a series or mission changes to the aircraft. (See AFR 173-13, Section C, para 2-3)

Fact Sheet

United States Air Force

HEADQUARTERS STRATEGIC AIR COMMAND, OFFICE OF PUBLIC AFFAIRS,
OFFUTT AFB, NE 68113 TEL. (402) 294-2067

86-17

KC-135 STRATOTANKER

The KC-135 Stratotanker, first delivered to the Strategic Air Command in 1957, gives the command its capability for high speed jet-to-jet refueling. This KC-135 characteristic provides U.S. Air Force aircraft with extended range and mobility.

A military version of the Boeing 707 transport, the KC-135 can fly at near sonic speed and at altitudes up to 50,000 feet. These characteristics allow aircraft to be refueled without slowing down or descending where jet engines burn fuel more rapidly.

The KC-135's primary mission is refueling long-range strategic bombers. But, because SAC is the Air Force's single manager for jet tanker operations, the Stratotanker supports every U.S. Air Force major air command that flies air-refuelable aircraft, the U.S. Navy, and our allies. To be compatible with the variety of aircraft it must refuel, the KC-135 has two fuel transfer modes. A flying boom is used to refuel bomber, fighter, reconnaissance and cargo aircraft, while a special drogue adapter is fitted to the boom for refueling probe-fitted tactical aircraft.

Beginning in 1964, KC-135s were employed in Southeast Asia operations, showing their importance in sustaining a flexible tactical airpower campaign.

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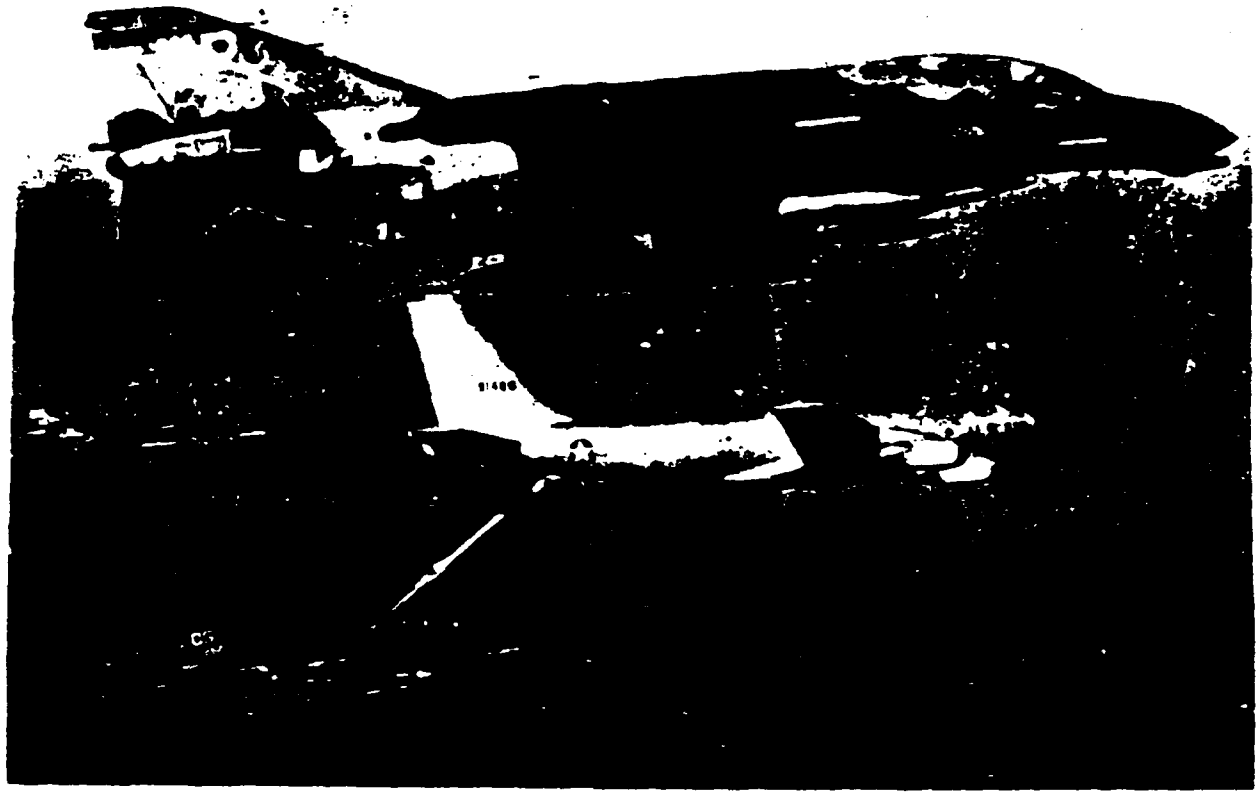


SPECIFICATIONS

	A model	R model	E model
Takeoff weight	297,000 pounds	322,500	297,000
Speed	600 mph maximum	-	-
Number of engines	four	-	-
Thrust per engine	up to 13,750 pounds	22,000	18,000
Range	more than 5,000 miles		
Crew	four (pilot, copilot, navigator and boom operator)		
Unit flyaway cost*	$19 million	$38.5M	$22.3M

Dimensions

- Span: 130 feet, 10 inches
- Sweepback: 35 degrees
- Length: 136 feet, 3 inches
- Height: 41 feet, 8 inches

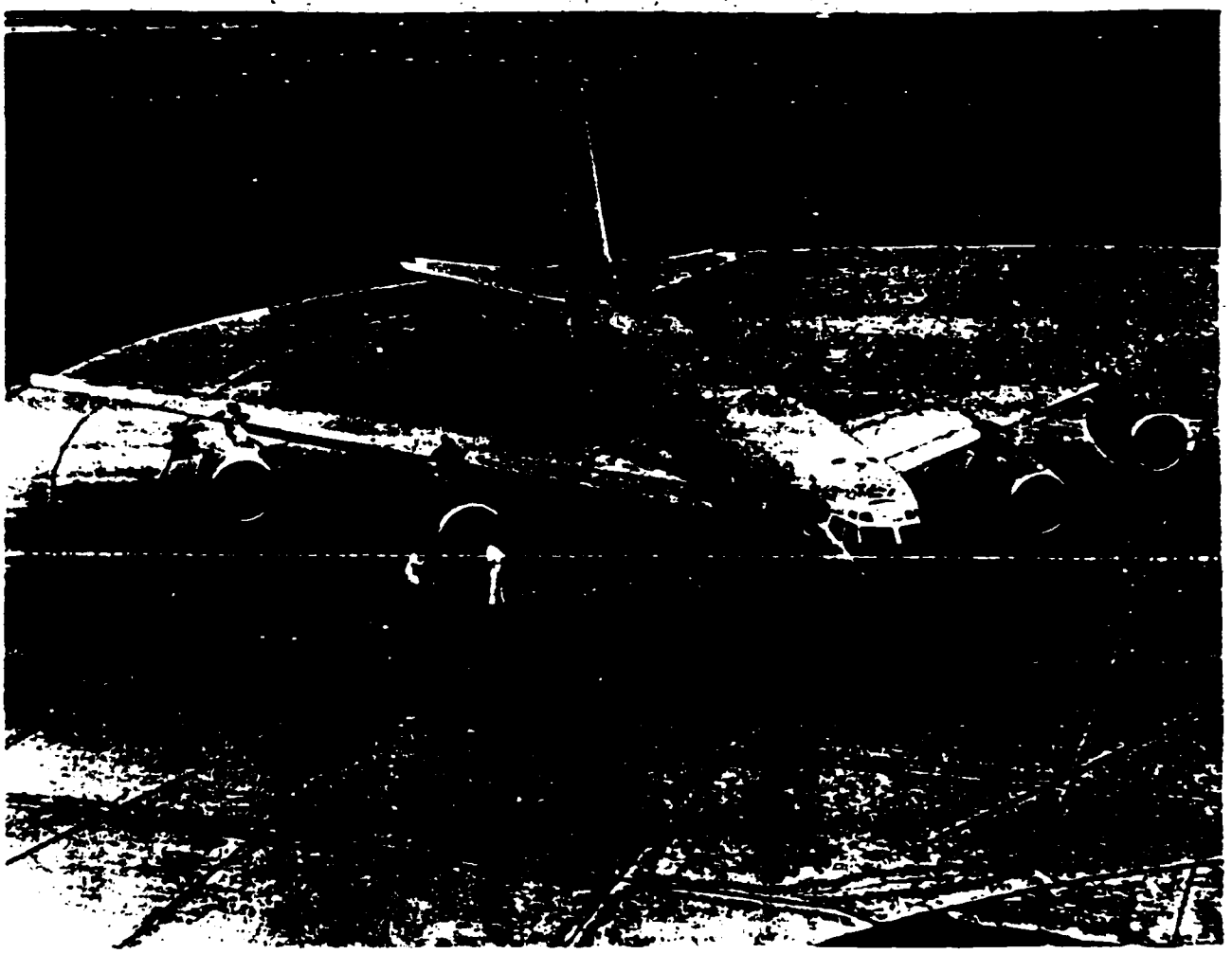
*Aircraft unit flyaway cost represents the approximate original cost of out-of-production and in-production aircraft in terms of today's "constant" dollars. Additionaly, the factors include modification costs resulting in a series or mission changes to aircraft. (See AFR 173-13, Section C, para 2-3)

This was the first conflict in which combat, bomber and fighter operations weren't limited by onboard fuel supplies. Their response to emergency situations also accounted for numerous documented aircraft "saves."

SAC has approximately 640 KC-135s, a portion of which are maintained on 24-hour ground alert. Air Reserve Forces operate 128 of these KC-135s.

The Air Force is currently reengining a major portion of the KC-135 fleet. Designated the KC-135R, nearly 400 Stratotankers will have new CFM-56 turbofan engines by Fiscal Year 1989. Reengining increases tanker offload capability by 50 percent while improving fuel efficiency by 27 percent. In addition, the new engines and updated aircraft systems will significantly reduce noise, pollution and maintenance costs. The Air Force plans to eventually reengine all its KC-135s.

Under another modification program, the KC-135s assigned to the Air Reserve Forces were reengined with refurbished JT3D-3B engines removed from retired Boeing 707 aircraft. Redesignated the KC-135E, this aircraft's fuel offload capability has been increased 25 percent while significantly decreasing noise and pollution.



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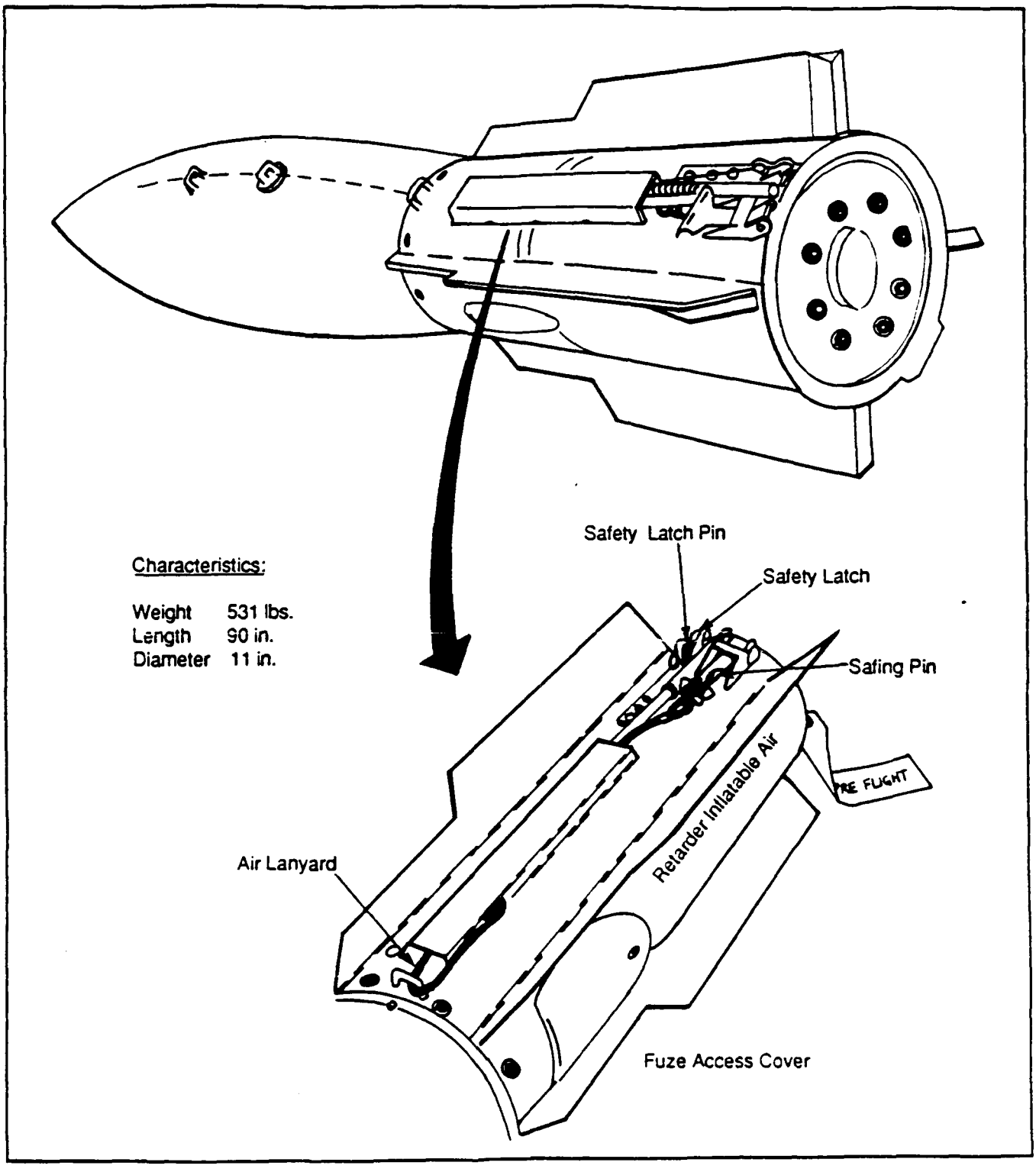
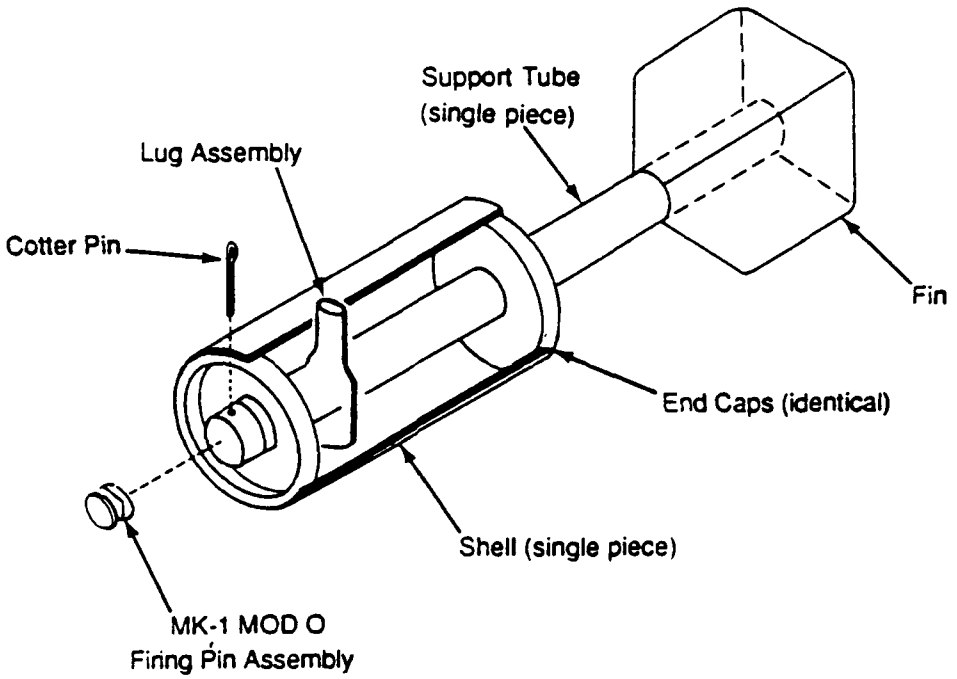
Appendix B: Description of Munitions



BDU-50 PRACTICE BOMB



Characteristics:

Weight	10 lbs.
Length	13 in.
Diameter	4 in.

BDU-48/B PRACTICE BOMB

BDU-48 TRAINING DEVICE

One of the training devices that would be used for SAC range operations is the BDU-48. The BDU-48 is cylindrical with square fins on the tail section (see Appendix D). It weighs 10 pounds, is 19 inches in length, and 4 inches in diameter. The BDU-48 is inert, nonexplosive, and would be painted fluorescent orange to enable easy identification. When released from a B-52 at 500 feet AGL and 360 KIAS, the BDU-48 travels a distance of approximately 2,252 feet and impacts the ground at an angle of 27 degrees, nose down, and would penetrate sandy loam soil approximately 6 inches, and in no case greater than 1.2 feet. In the event of hard surface strike, maximum or worst-case ricochet is no greater than 580 feet along the axis of the strike. (Source: University of Oklahoma at Air Force Weapons Laboratory, Eglin AFB, Florida.)

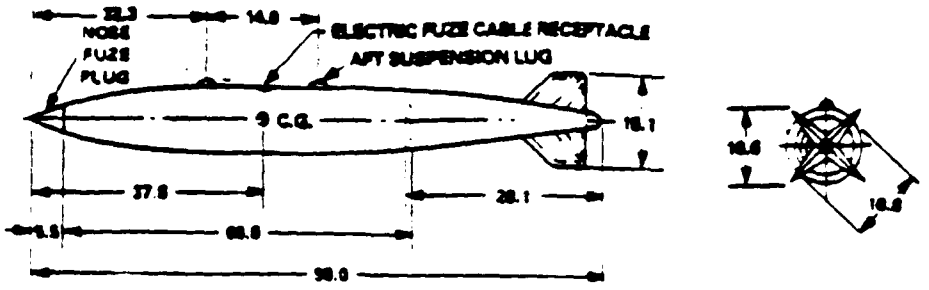
BDU-48

The footprint is defined as an area where 99.99 percent of the BDU-48s are predicted to fall based on past range analysis. The present footprint developed by Headquarters SAC/NR (Science and Research) for the BDU-48 is an ellipse 4,520 feet long and 3,580 feet wide (see Figure E-1) and was developed from results of past range activity. Approval for the use of this footprint has been granted.

HUNG BDU-48 PROCEDURES

Should an aircraft experience a hung BDU-48, the aircraft would fly the established radar traffic pattern and land immediately. A review of the land area under the radar traffic pattern indicates the flight path avoids populated areas to the maximum extent possible, and is the best location for a hung BDU-48 pattern. According to HQ SAC/LGWC, a malfunctioning ejector rack or slow-burn ejector cartridge would be the cause of a hung BDU-48. However, this would be a rare occurrence. The ejector rack is designed so that the partial opening of an ejector rack is highly unlikely. Although the possibility exists for malfunctioning ejector cartridges, a low-burning cartridge cannot generate sufficient power to unlatch the rack hooks and cause a hung BDU-48. To date, B-52 aircraft have not experienced any inadvertent releases with a hung BDU-48.

MK-82



Munition: MK-82
Weight : 531 LBS
Length : 90"
Diameter: 10.6"
Target : Fixed
Status : Inventory

Min Interval: .050 sec.
Train Length: 320'- 1985'
Type Fin : MAU-93 Conical
*Warhead : 191 lbs
** Fuze : M904, M905 FMU-113/B FMU-139A/B

Aircraft	Number of Stores		
	Internal	External MER	External HSAB
B-52G	27	24	18
B-52H	27	24	--

Remarks:

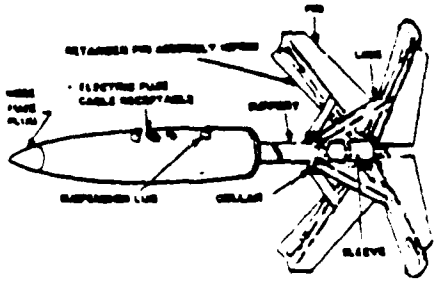
NOTE: Train length minimum (320') based on 470 kts ground speed and rapid mode release. Train length maximum (1985') based on 470 kts ground speed and single string release mode.

* Explosive: H-6, Tritonal, Minol II

** M-904 - Nose fuze
M-905 - Tail fuze
FMU-113/B - Nose proximity fuze
FMU-139A/B - Nose and/or tail fuze

Current as of: 1 Oct 87

MK-82SE



Munition: MK-82 Snakeye (SE)

Weight : 560 lbs

Length : 91.0 "

Diameter: 10.8 "

Target : Fixed Hard

Status : Inventory

*Min Interval: --

**Train Length: --

Type Fin : MK-15

***Warhead : 192 lbs

Fuze : FMU-54 A/B or
FMU-139A/B
Tail only

Aircraft	Number of Stores		
	Internal	External MER	External HSAB
B-52G	27	24	18
B-52H	27	24	--

Remarks:

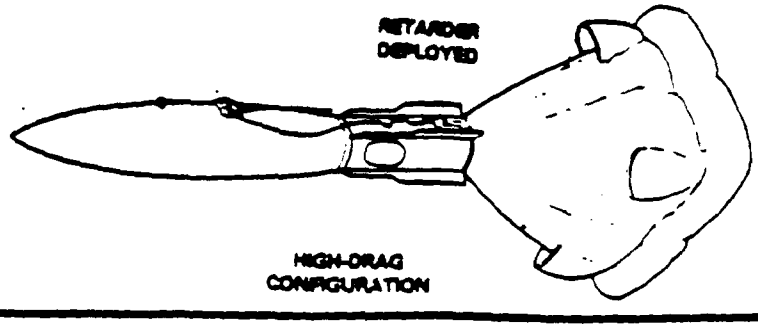
		BRIC 3-C	DBRIC
*	Internal Cluster Rack:	.101 sec	.095 sec
	External MER:	.107 sec	.100 sec
	External HSAB:	.088 sec	.080 sec
**	Internal Cluster Rack:	1640'	1545'
	External MER:	1540'	1435'
	External HSAB:	935'	850'

NOTE: Train length based on 370 kts ground speed and normal release mode.

*** Explosive: H-6, Tritonal or Minol II

Current as of: 1 Oct 87

MK-82AIR



Munition: MK-82 AIR (Air Inflatable Retarder)

Weight : 549 lbs

Length : 90.0 "

Diameter: 10.5 "

Target : Fixed Hard

Status : Inventory

*Min Interval: --

**Train Length: --

Type Fin : BSU-49/B

***Warhead : 192 lbs

@Fuze : FMU-54 A/B
FMU-139/B

Aircraft	Number of Stores		
	Internal	External MER	External HSAB
B-52G	27	24	18
B-52H	27	24	--

Remarks:

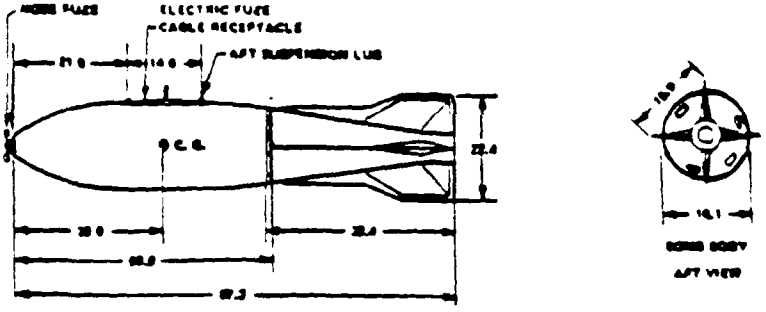
		BRIC 3-C	DBRIC
*	Internal Cluster Rack:	.100 sec	.090 sec
	External MER:	.107 sec	.085 sec
	External HSAB:	.071 sec	.060 sec
**	Internal Cluster Rack:	1625'	1460'
	External MER:	1540'	1220'
	External HSAB:	755'	630'

NOTE: Train length based on 370 kts ground speed and normal release mode.

*** Explosive: H-6, Tritonal or Minol II

Current as of: 1 Oct 87

M-117



Munition: M-117 Min Interval: .050 sec.

Weight : 734 lbs *Train Length: 320'- 1985'

Length : 87.3" Type Fin : M-103 Conical

Diameter: 16.1" **Warhead: 386 lbs

Target : Fixed ***Fuze : M904, M905
FMU-113/B

Status : Inventory FMU-139A/B

Aircraft	Number of Stores		
	Internal	External MER	External HSAB
B-52G	27	24	18
B-52H	27	24	--

Remarks:

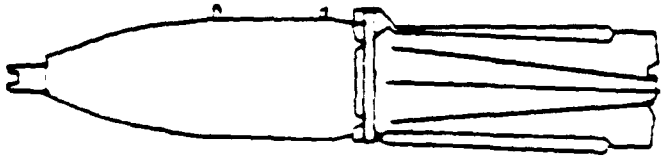
* Minimum train length (320') based on 470 kts ground speed and rapid release sequence: Maximum train length (1985') based on 470 kts ground speed and single string release mode.

** Explosive: H-6, Tritonal or Minol II

*** M904 - Nose fuze
M905 - Tail fuze
FMU-113/B Nose proximity fuze
FMU-139 A/B - Nose and/or tail fuze

Current as of: 1 Oct 87

M-117R



Munition: M-117 R
Weight : 854 lbs
Length : 82.0 "
Diameter: 16.1 "
Target : Fixed
Status : Inventory

*Min Interval: --
** Train Length: --
Fin Type: MAU-91 or BSU-85
***Warhead: 386 lbs
Fuze: FMU-54A/B or FMU-139A/B (Tail only)

Aircraft	Number of Stores		
	Internal	External MER	External HSAB
B-52G	27	24	18
B-52H	27	24	--

Remarks:

		BRIC 3-C	DBRIC
*	Internal Cluster Rack:	.142 sec	.140 sec
	External MER:	.118 sec	.110 sec
	External HSAB:	.095 sec	.085 sec
**	Internal Cluster Rack:	2305'	2270'
	External MER:	1695'	1580'
	External HSAB:	1010'	900'

NOTE: Train length based on 370 kts ground speed and normal release mode.

*** Explosive: H-6, Tritonal or Minol II

Current as of: 1 Oct 87

Appendix C: Deployment Package

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS EIGHTH AIR FORCE (SAC)
BARKSDALE AIR FORCE BASE, LOUISIANA 71110-5002

REPLY TO ATTN OF: LGX (MSgt Neiderer, 3291)

21 DEC 1988

SUBJECT: 7 PAA (B-52) Deployment Package DMD

TO: 2 BMW/RM/MA, 7 BMW/RM/MA, 42 BMW/RM/MA, 97 BMW/RM/MA, 379 BMW/RM/MA, 410 BMW/RM/MA, 416 BMW/RM/MA

As a result of the MIGHTY FORCE/MIGHTY WARRIOR deployments in 1987-88, my staff has developed a Deployment Manning Document (DMD) and a Deployment Equipment Document (DED) for a 7 PAA bomber deployment to a bare base location. The package has been reviewed by all LG agencies and will be used as a maximum package for all future MIGHTY FORCE/MIGHTY WARRIOR deployments. Please limit future deployment packages to the essential people/equipment in attachments 1 and 2.

Earl A. Tonjes

EARL A. TONJES, Colonel, USAF
Deputy Chief of Staff/Logistics

2 Atch
1. DMD
2. DED

cc: HQ SAC/LGL/LGM

1988
YEAR OF THE SAC ALERT FORCE

UTC	LINE NUMBER	FAC CODE	POSITION TITLE	AFSC	OFFICER	Q
HFBMP	1	2200	STAFF OFFICER	4016	05	
"	2	2200	AC MAINT MGR	45200		
"	3	2200	AC MAINT OFF	4024	03	
"	4	2200	AC MAINT SUPT	45799		
"	5	2200	AC MAINT SUPT	45799		
"	6	2200	STRAT AC MAINT TECH	45770		
"	7	2200	STRAT AC MAINT TECH	45770		
3BACC	8	2200	STRAT AC MAINT TECH	45770		
"	9	2200	STRAT AC MAINT TECH	45770		
"	10	2200	STRAT AC MAINT TECH	45770		
"	11	2200	STRAT AC MAINT TECH	45770		
"	12	2200	STRAT AC MAINT TECH	45770		
3BACA	13	2200	STRAT AC MAINT TECH	45770		
"	14	2200	STRAT AC MAINT TECH	45770		
"	15	2200	STRAT AC MAINT TECH	45770		
3BACC	16	2200	STRAT AC MAINT SPEC	45750B		
"	17	2200	STRAT AC MAINT SPEC	45750B		
"	18	2200	STRAT AC MAINT SPEC	45750B		
"	19	2200	STRAT AC MAINT SPEC	45750B		
"	20	2200	STRAT AC MAINT SPEC	45750B		
3BACA	21	2200	STRAT AC MAINT SPEC	45750B		
"	22	2200	STRAT AC MAINT SPEC	45750B		
"	23	2200	STRAT AC MAINT SPEC	45750B		
HFBMP	24	2200	STRAT AC MAINT SPEC	45750B		
"	25	2200	STRAT AC MAINT SPEC	45750B		
"	26	2200	STRAT AC MAINT SPEC	45750B		
"	27	2200	STRAT AC MAINT SPEC	45750B		
"	28	2200	STRAT AC MAINT SPEC	45750B		
"	29	2200	STRAT AC MAINT SPEC	45750B		
"	30	2200	STRAT AC MAINT SPEC	45750B		
"	31	2200	STRAT AC MAINT SPEC	45750B		
"	32	2200	STRAT AC MAINT SPEC	45750B		
"	33	2200	STRAT AC MAINT SPEC	45750B		
"	34	2200	STRAT AC MAINT SPEC	45750B		
"	35	2200	STRAT AC MAINT SPEC	45750B		
"	36	2200	STRAT AC MAINT SPEC	45750B		
HFBMP	37	2200	AC MAINT OFF	4024	03	
"	38	2200	AC MAINT SUPT	45799		
"	39	2200	STRAT AC MAINT TECH	45770		
"	40	2200	STRAT AC MAINT TECH	45770		
3YCA1	41	2200	STRAT AC MAINT TECH	45770		
"	42	2200	STRAT AC MAINT TECH	45770		
"	43	2200	STRAT AC MAINT TECH	45770		
"	44	2200	STRAT AC MAINT TECH	45770		
	45	2200	STRAT AC MAINT TECH	45770		
"	46	2200	STRAT AC MAINT TECH	45770		
3YCAB	47	2200	STRAT AC MAINT TECH	45770		
3YCA1	48	2200	STRAT AC MAINT SPEC	45750C		
3YCA1	49	2200	STRAT AC MAINT SPEC	45750C		

Atch 1

"	50	2200	STRAT AC MAINT SPEC	45750C	1
"	51	2200	STRAT AC MAINT SPEC	45750C	1
"	52	2200	STRAT AC MAINT SPEC	45750C	1
3YCAB	53	2200	STRAT AC MAINT SPEC	45750C	1
HFBMP	54	2200	STRAT AC MAINT SPEC	45750C	1
"	55	2200	STRAT AC MAINT SPEC	45750C	1
"	56	2200	STRAT AC MAINT SPEC	45750C	1
"	57	2200	STRAT AC MAINT SPEC	45750C	1
"	58	2200	STRAT AC MAINT SPEC	45750C	1
"	59	2200	STRAT AC MAINT SPEC	45750C	1
"	60	2200	STRAT AC MAINT SPEC	45750C	1
"	61	2200	STRAT AC MAINT SPEC	45750C	1
"	62	2200	STRAT AC MAINT SPEC	45750C	1
"	63	2200	STRAT AC MAINT SPEC	45750C	1
"	64	2200	STRAT AC MAINT SPEC	45750C	1
"	65	2200	STRAT AC MAINT SPEC	45750C	1
"	66	2200	JET ENGINE TECH	45470A	1
"	67	2200	JET ENGINE TECH	45470A	1
"	68	2200	JET ENGINE TECH	45470A	
"	69	2200	JET ENGINE SPEC	45450A	1
"	70	2200	JET ENGINE SPEC	45450A	1
"	71	2200	JET ENGINE SPEC	45450A	1
"	72	2200	JET ENGINE SPEC	45450A	1
"	73	2200	AC PNEUDRALIC TECH	45474	1
"	74	2200	AC PNEUDRALIC TECH	45474	1
"	75	2200	AC PNEUDRALIC TECH	45474	1
"	76	2200	AC PNEUDRALIC SPEC	45454	1
"	77	2200	AC PNEUDRALIC SPEC	45454	1
"	78	2200	AC PNEUDRALIC SPEC	45454	1
"	79	2200	AC ELECTRONIC SYS TECH	45475	1
"	80	2200	AC ELECTRONIC SYS TECH	45475	1
"	81	2200	AC ELECTRONIC SYS SPEC	45455	1
"	82	2200	AC ELECTRONIC SYS SPEC	45455	1
"	83	2200	AC ELECTRONIC SYS SPEC	45455	1
"	84	2200	AC ELECTRONIC SYS SPEC	45455	1
"	85	2200	BOMB NAV SYS TECH	45670A	1
"	86	2200	BOMB NAV SYS TECH	45670A	1
"	87	2200	BOMB NAV SYS SPEC	45650A	1
"	88	2200	BOMB NAV SYS SPEC	45650A	1
"	89	2200	BOMB NAV SYS SPEC	45650A	1
"	90	2200	BOMB NAV SYS SPEC	45650A	1
"	91	2200	BOMB NAV SYS SPEC	45650A	1
"	92	2200	DEF FIRE CONTROL TECH	45670B	1
"	93	2200	DEF FIRE CONTROL SPEC	45650B	1
"	94	2200	DEF FIRE CONTROL SPEC	45650B	1
"	95	2200	DEF FIRE CONTROL SPEC	45650B	1
"	96	2200	DEF FIRE CONTROL SPEC	45650B	1
"	97	2200	ELEC WARFARE SYS TECH	45671A	1
"	98	2200	ELEC WARFARE SYS TECH	45671A	1
"	99	2200	ELEC WARFARE SYS SPEC	45651A	1
"	100	2200	ELEC WARFARE SYS SPEC	45651A	1
"	101	2200	ELEC WARFARE SYS SPEC	45651A	1
"	102	2200	1ST SERGEANT	10090	1
"	103	2200	JET ENGINE SPEC	45450A	1
HFBMP	104	2200	ADMINISTRATIVE SPEC	70250	1

"	105	2200	STRAT AC MAINT SPEC	45750B/C		1
"	106	2200	STRAT AC MAINT SPEC	45750B/C		1
"	107	2300	SYS MGR	45400		1
"	108	2300	ELECTRO-ENVIRON TECH	45475		1
"	109	2300	ELECTRO-ENVIRON TECH	45475		1
"	110	2300	ELECTRO-ENVIRON SPEC	45455		1
"	111	2300	AERO REPAIR TECH	45474A		1
"	112	2300	AERO REPAIR TECH	45474A		1
"	113	2300	AERO REPAIR SPEC	45454A		1
"	114	2300	AERO REPAIR SPEC	45454A		1
"	115	2300	AC EGRS SYS TECH	42472		1
"	116	2300	NON DESTRUCT INP SPEC	45851		1
"	117	2300	AC FUEL SYS TECH	45473		1
"	118	2300	AC FUEL SYS TECH	45453		1
"	119	2300	STRUCT MAINT TECH	45872		1
"	120	2300	STRUCT MAINT TECH	45872		1
"	121	2300	STRUCT MAINT SPEC	45852		1
"	122	2300	AERO GR EQUIP TECH	45471		1
"	123	2300	AERO GR EQUIP TECH	45471		1
"	124	2300	AERO GR EQUIP SPEC	45451		1
"	125	2300	AERO GR EQUIP SPEC	45451		1
"	126	2300	AERO GR EQUIP SPEC	45451		1
"	127	2300	AERO GR EQUIP SPEC	45451		1
"	128	2300	AERO GR EQUIP SPEC	45451		1
"	129	2300	AERO REAPIR SPEC	45454A		1
"	130	2400	AUTO FLT CONT SYS TECH	45571B		1
"	131	2400	AUTO FLT CONT SYS TECH	45551B		1
"	132	2400	AUTO FLT CONT SYS TECH	45551B		1
"	133	2400	AVN INST SYS TECH	45571B		1
"	134	2400	AVN INST SYS TECH	45571B		1
"	135	2400	AVN INST SYS SPEC	45551B		1
"	136	2400	AVN INST SYS SPEC	45551B		1
"	137	2400	AVN COMM TECH	45572B		1
"	138	2400	AVN COMM SPEC	45552B		1
"	139	2400	AVN COMM SPEC	45552B		1
"	140	2400	AVN COMM SPEC	45552B		1
"	141	2400	AVN NAV SYS TECH	45572B		1
"	142	2400	AVN NAV SYS TECH	45572B		1
"	143	2400	AVN NAV SYS SPEC	45552B		1
"	144	2400	AVN NAV SYS SPEC	45552B		1
"	145	2400	AVN IN/RD TECH	45572B		1
"	146	2400	AVN IN/RD SPEC	45551B		1
HHGBA	147	2500	MUNITIONS MAINT OFF	4054A	03	1
"	148	2500	AC ARMAMENT SYS SUPVR	46290		1
"	149	2500	AC ARM SYSTECH	46270		1
"	150	2500	AC ARM SYS SPEC	46250		1
"	151	2500	AC ARM SYS SPEC	46250		1
"	152	2500	AC ARM SYS SPEC	46250		1
"	153	2500	AC ARM SYS SPEC	46250		1
"	154	2500	AC ARM SYS SPEC	46250		1
"	155	2500	AC ARM SYS SPEC	46250		1
"	156	2500	AC ARM SYS SPEC	46250		1
"	157	2500	AC ARM SYS SPEC	46250		1
HHGBA	158	2500	AC ARM SYS SPEC	46250		1

"	159	2500	AC ARM SYS SPEC	46250		1
"	160	2500	AC ARM SYS SPEC	46250		1
"	161	2500	AC ARM SYS SPEC	46250		1
"	162	2500	MUNITIONS SYS TECH	41670		1
"	163	2500	MUNITIONS SYS SPEC	41650		1
"	164	2500	MUNITIONS SYS SPEC	41650		1
"	165	2500	MUNITIONS SYS SPEC	41650		1
"	166	2500	MUNITIONS SYS SPEC	41650		1
"	167	2500	MUNITIONS SYS SPEC	41650		1
"	168	2500	EOD OFF	40548	03	1
"	169	2500	EOD SPEC	46450		1
HFBMP	170	2200	STRAT AC MAINT TECH	45770		1
"	171	2200	STRAT AC MAINT TECH	45770		1
"	172	2200	STRAT AC MAINT TECH	45770		1
"	173	2200	STRAT AC MAINT TECH	45770		1
"	174	2300	FAB & PARACHUTE SPEC	45853		1
"	175	2200	JET ENGINE TECH	45470A		1
"	176	2200	AVN COMM NAV SUPVR	45599		1
6FKAD	177	3835	COMM SYS RADIO OPERATOR	49251		1
"	178	3835	COMM SYS RADIO OPERATIONS	49251		1
"	179	3835	APR COMM SYS RADIO OPR	49231		1
"	180	3835	COMMUNICATIONS OFF	4941	03	1
4F9R6	181	4600	FOOD SERVICE OFF	6211		1
"	182	4600	FOOD SERVICE SUPVR	62390		1
XFFF4	183	4670	FOOD SERVICE SPEC	62350		1
"	184	4670	FOOD SERVICE SPEC	62350		1
"	185	4670	FOOD SERVICE SPEC	62350		1
"	186	4670	FOOD SERVICE SPEC	62350		1
4F9R6	187	4601	INVENTORY MTG SPEC	64550		1
"	188	4640	SERVICES SUPVR	62370		1
"	189	4640	SERVICES SPEC	62350		1
"	190	4640	SERVICES SPEC	62350		1
"	191	4640	SERVICES SPEC	62350		1
QFEBC	192	4390	SECURITY POLICE OFF	8124	03	1
"	193	4390	SECURITY POLICE SUPVR	81199		1
"	194	4390	LAW ENFORCEMENT SPEC	81152		1
"	195	4390	LAW ENFORCEMENT SPEC	81152		1
"	196	4390	SECURITY SPEC	81150		1
"	197	4390	SECURITY SPEC	81150		1
"	198	4390	SECURITY SPEC	81150		1
"	199	4390	SECURITY SPEC	81150		1
"	200	4390	SECURITY SPEC	81150		1
"	201	4390	SECURITY SPEC	81150		1
"	202	4390	SECURITY SPEC	81150		1
"	203	4390	SECURITY SPEC	81150		1
"	204	4390	SECURITY SPEC	81150		1
"	205	4390	SECURITY SPEC	81150		1
"	206	4390	SECURITY SPEC	81150		1
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"	209	4390	SECURITY SPEC	81150		1
"	210	4390	SECURITY SPEC	81150		1
"	211	4390	SECURITY SPEC	81150		1

"	212	4390	SECURITY SPEC	81150		1
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"	214	4390	SECURITY SPEC	81150		1
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"	216	4390	SECURITY SPEC	81150		1
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"	219	4390	SECURITY SPEC	81150		1
"	220	4390	SECURITY SPEC	81150		1
"	221	4390	SECURITY SPEC	150		1
"	222	4390	SECURITY SPEC	81150		1
"	223	4390	SECURITY SPEC	81150		1
"	224	4390	SECURITY SPEC	81150		1
"	225	4390	SECURITY SPEC	81150		1
"	226	4390	SECURITY SPEC	81150		1
"	227	4390	SECURITY SPEC	81150		1
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"	230	4390	SECURITY SPEC	81150		1
"	231	4390	SECURITY SPEC	81150		1
"	232	4390	SECUIRYT SPEC	81150		1
"	233	4390	SECURITY SPEC	81150		1
"	234	4390	SECURITY SPEC	81150		1
"	235	4390	SECURITY SPEC	81150		1
"	236	4390	SECURITY SPEC	81150		1
UFTSR	237	4200	TRANSPORTATION SUPVR	47271		1
UFTSK	238	4200	AIR CARGO SPEC	60551		1
"	239	4200	AIR CARGO SPEC	60551		1
UFTRA	240	4200	FREIGHT & PACK SPEC	60251		1
"	241	4200	FREIGHT & PACK SPEC	60251		1
UFTSK	242	4200	VEH OPR/DISPATCHER	60350		1
"	243	4200	VEH OPR/DISPATCHER	60350		1
"	244	4200	VEH OPR/DISPATCHER	60350		1
"	245	4200	VEH OPR/DISPATCHER	60350		1
"	246	4200	VEH OPR/DISPATCHER	60350		1
UFTSK	247	4200	VEH OPR/DISPATCHER	60250		1
"	248	4200	VEH OPR/DISPATCHER	60350		1
"	249	4200	VEH OPR/DISPATCHER	60350		1
"	250	4200	VEH OPR/DISPATCHER	60350		1
"	251	4200	VEH OPR/DISPATCHER	60350		1
UFTSP	252	4200	SPECIAL VEHICLE MECH	47251		1
"	253	4200	SP VEH MECH FIRETRUCK	47251A		1
9ACBB	254	5310	FLIGHT SURGEON	9356	03	1
"	255	5310	AEROMEDICAL SVS TECH	90250C		1
"	256	5310	ENVIORN HEALTH TECH	90850		1
XWQAE	257	3410	FORECASTER/OBSERVER	25170		1
"	258	3410	FORECASTER/OBSERVER	25170		1
"	259	3420	FORECASTER/OBSERVER	25150A		1
"	260	3420	FORECASTER/OBSERVER	25150		

JFDGA	261	4100	INV MGT SPEC	64570		1
"	262	4173	FUEL SUPVR	63170		1
"	263	4173	FUEL SUPVR	63170		1
"	264	4173	FUEL SUPVR	63170		1
JFDGA	265	4173	FUEL SPEC	63150		1
"	266	4173	FUEL SPEC	63150		1
"	267	4173	FUEL SPEC	63150		1
JFDGA	268	4173	FUEL SPEC	63150		1
"	269	4173	FUEL SPEC	63150		1
"	270	4173	FUEL SPEC	63150		1
JFDGA	271	4173	FUEL SPEC	63150		1
"	272	4173	FUEL SPEC	63150		1
"	273	4173	FUEL SPEC	63150		1
JFDGA	274	4173	FUEL SPEC	63150		1
"	275	4173	FUEL SPEC	63150		1
"	276	4173	FUEL SPEC	63150		1
JFDGA	277	4173	FUEL SPEC	63150		1
"	278	4173	FUEL SPEC	63150		1
"	279	4173	FUEL SPEC	63150		1
JFDGA	280	4173	FUEL SPEC	63150		1
"	281	4173	FUEL SPEC	63150		1
"	282	4173	FUEL SPEC	63150		1
JFBHB	283	4122	MAT STOR & DIST SPEC	64551		1
"	284	4141	INV MGT SPEC	64550		1
"	285	4154	INV MGT SPEC	64550		1
RFBFC	286	1600	PERSONNEL SPEC	73250		1
"	287	1600	PERSONNEL SPEC	73250		1
"	288	1600	PERSONNEL SPEC	73250		1
RFBFA	289	1600	PERSONNEL SPEC	73250		1
HFBZC	290	1251	CONTRACTING SPEC	65150		1
"	291	1251	CONTRACTING OFF	6516	03	1
3YCA1	292	3110	AIRCRAFT COMMANDER	1065	04	1
"	293	3110	PILOT	1063	03	1
"	294	3110	NAV	1535	03	1
"	295	3110	BOOM OPERATOR	A11250		1
"	296	3110	AIRCRAFT COMMANDER	1065	04	1
"	297	3110	PILOT	1063	03	1
"	298	3110	NAV	1535	03	1
"	299	3110	BOOM OPERATOR	A11250		1
"	300	3110	AIRCRAFT COMMANDER	1065	04	1
"	301	3110	PILOT	1063	03	1
"	302	3110	NAV	1535	03	1
"	303	3110	BOOM OPERATOR	A11250		1
"	304	3110	AIRCRAFT COMMANDER	1065	04	1
"	305	3110	PILOT	1063	03	1
"	306	3110	NAV	1535	03	1
"	307	3110	BOOM OPERATOR	A11250		1
"	308	3110	AIRCRAFT COMMANDER	1065	04	1
"	309	3110	PILOT	1063	03	1
"	310	3110	NAV	1535	03	1
"	311	3110	BOOM OPERATOR	A11250		1

3YCAB	312	3110	AIRCRAFT COMMANDER	1065	04	1
"	313	3110	PILOT	1063	03	1
"	314	3110	NAV	1535	03	1
"	315	3110	BOOM OPERATOR	A11250		1
3YCAB	316	3110	AIRCRAFT COMMANDER	1065	04	1
"	317	3110	PILOT	1063	03	1
"	318	3110	NAV	1535	03	1
"	319	3110	BOOM OPERATOR	A11250		1
"	320	3110	ADMINISTRATIVE SPEC	70250		1
4F9AB	321	4400	CE OFFICER	5515G	03	1
"	322	4463	HEATING SYS TECH	54572		1
"	323	4453	PLUMPING SPEC	55255		1
"	324	4551	CARPENTRY SPEC	55250		1
"	325	4472	EXTERIOR ELECTRIC SPEC	54251		1
"	326	4471	INTERIOR ELECTRIC SPEC	54250		1
"	327	4463	HEATING SYS SPEC	54552		1
"	328	4463	CONSTRUCTION EQUIP OPERATOR	55170		1
"	329	4463	WATER WASTE	56370		1
4F9BF	330	4425	FIRE PROTECTION SUPVR	57170		1
4F9BG	331	4426	FIRE PROTECTION SPEC	57150		1
"	332	4426	FIRE PROTECTION SPEC	57150		1
"	333	4426	FIRE PROTECTION SPEC	57150		1
"	334	4426	FIRE PROTECTION SPEC	57150		1
"	335	4426	FIRE PROTECTION SPEC	57150		1
"	336	4426	FIRE PROTECTION SPEC	57150		1
HFBMP	337	1210	LOGISTICS PLANS TECH	66170		1
"	338	3100	PILOT STRAT BMR B-52	K1235C	04	1
"	339	1310	AIR OPS OFF NAV/STRAT	2225	05	1
"	340	3100	DEF AERIAL GUNNER TECH	K11170		1
"	341	3100	AIRCRAFT COMMANDER	1065C	04	1
9ACCB	342	3100	PILOT STRAT BMR B-52	1233C	02	1
"	343	3100	PILOT	1063C	02	1
"	344	3100	BOOM OPERATOR	K11250		1
"	345	3100	NAV-BOMB	K1525C	04	1
"	346	3100	NAV-BOMB	K1525C	04	1
"	347	3100	NAVIGATOR	K1535G	04	1
9ACBB	348	1310	AIR OPS OFF NAV/STRAT	2225	04	1
"	349	3551	INTEL OFF	8085	04	1
"	350	3551	IMTEL APPLICATION OFF	8065	04	1
"	351	3551	INTEL	20150		1
"	352	1310	NAV ELECT WARWARE OFF	2225	04	1
"	353	1310	NAV ELECT WARFARE OFF	2225	04	1
"	354	1300	ADMINSTRATIVE SPEC	70250		1
3BACC	355	1330	PLT STRAT BMR B-52	1235C	03	1
"	356	1330	PLT STRAT BMR B-52	1235C	03	1
"	357	1330	NAV BOMBARDIER STRAT	1525C	04	1
"	358	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	359	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	360	1330	DEF AERIAL GUNNER	A11150		1
"	361	1330	PLT STRAT BMR B-52	1235C	03	1

"	362	1330	PLT STRAT BMR B-52	1233C	03	1
"	363	1330	NAV BOMBARDIER STRAT	1525C	03	1
"	364	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	365	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	366	1330	DEF AERIAL GUNNER	A11150		1
"	367	1330	PLT STRAT B-52	1235C	03	1
"	368	1330	PLT STRAT B-52	1233C	03	1
"	369	1330	NAV BOMBARDIER STRAT	1525C	03	1
"	370	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	371	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	372	1330	DEF AERIAL GUNNER	A11150		1
"	373	1330	PLT STRAT BMR B-52	1235C	03	1
"	374	1330	PLT STRAT BMR B-52	1233C	03	1
"	375	1330	NAV BOMBARDIER STRAT	1525C	03	1
"	376	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	377	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	378	1330	DEF AERIAL GUNNER	A11150		1
"	379	1330	PLT STRAT BMR B-52	1235C	03	1
"	380	1330	PLT STRAT BMR B-52	1233C	03	1
"	381	1330	NAV BOMBARDIER STRAT	1525C	03	1
"	382	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	383	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	384	1330	DEF AERIAL GUNNER	A11150		1
3BACC	385	1330	PLT STRAT BMR B-52	1235C	03	1
"	386	1330	PLT STRAT BMR B-52	1233C	03	1
"	387	1330	NAV BOMBARDIER STRAT	1525C	03	1
"	388	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	389	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	390	1330	DEF AERIAL GUNNER	A11150		1
"	391	1330	PLT STRAT BMR B-52	1235C	03	1
"	392	1330	PLT STRAT BMR B-52	1233C	03	1
"	393	1330	NAV BOMABRDIER STRAT	1525C	03	1
"	394	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	395	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	396	1330	DEF AERIAL GUNNER	A11150		1
"	397	1330	PLT STRAT BMR B-52	1235C	03	1
"	398	1330	PLT STRAT BMR B-52	1233C	03	1
"	399	1330	NAV BOMBARDIER STRAT	1525C	03	1
"	400	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	401	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	402	1330	DEF AERIAL GUNNER	A11150		1
"	403	1330	PLT STRAT BMR B-52	1235C	03	1
"	404	1330	PLT STRAT BMR B-52	1233C	03	1
"	405	1330	NAV BOMBARDIER STRAT	1525C	03	1
"	406	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	407	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	408	1330	DEF AERIAL GUNNER	A11150		1
"	409	1330	PLT STRAT BMR B-52	1235C	03	1
"	410	1330	PLT STRAT BMR B-52	1233C	03	1
"	411	1330	NAV BOMBARDIER STRAT	1525C	03	1
"	412	1330	NAV BOMBARDIER STRAT	1525A	03	1

"	413	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	414	1330	DEF SERIAL GUNNER	A11150		1
3BACC	415	1330	PLT STRAT BMR B-52	1235C	03	1
"	416	1330	PLT STRAT BMR B-52	1233C	03	1
"	417	1330	NAV BOMBARDIER STRAT	1525C	03	1
"	418	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	419	1330	NAV ELECT WARFARE OFF	1575A	03	1
"	420	1330	DEF AERIAL GUNNER	A11150		1
"	421	1330	PLT STRAT BMR B-52	1235C	03	1
"	422	1330	PLT STRAT BMR B-52	1233C	03	1
"	423	1330	NAV BOMBARDFIER STRAT	1525C	03	1
"	424	1330	NAV BOMBARDIER STRAT	1525A	03	1
"	425	1330	NAV ELECT WARFARE OFF	1575C	03	1
"	426	1330	DEF AERIAL GUNNER	A11150		1
3BADB	427	1330	PLT STRAT BMR B-52	1235C	03	1
3BADB	428	1330	NAV ELECT WARFARE OFF	1575C	02	1
"	429	1330	NAV ELECT WARFARE OFF	1575C	02	1
"	430	1330	NAV BOMBARDIER STRAT	1525C	03	1
"	431	1330	NAV BOMBARDIER STRAT	1535C	03	1
"	432	1330	DEF AERIAL GUNNER	A11150		1
"	433	1330	DEF AERIAL GUNNER	A11150		1
3BADB	434	1330	DEF AERIAL GUNNER	A11150		1
JFBHB	435	4100	INV MGT SPEC (CSS)	64550/52		1
"	436	4100	INV MGT SPEC (CSS)	64550/52		1
"	437	4100	MAT STOR & DIST SPEC	64551		1

Appendix D: Building Descriptions

COORDINATION AND FILE COPY

AC FORM 96, AUG 87
PREVIOUS EDITION WILL BE USED

FUNC ADDRESS SYMBOL	LAST NAME AND DATE
CINC/CC	
VCINC/CV	
CS	
CSA	
AC	
CG	
CK	
DEP	
DP	
HC	
XO	
IG	
IN	
LG	
NR	
PA	
SC	
SG	
SP	
XO	
XP	

DEP

23 FEB 1989

Request for Appraisal for Facilities and Land at Roswell Air Park, New Mexico

HQ USAF/LEER

1. We have received a request from Eighth Air Force, Barksdale AFB-LA, concerning the lease of facilities and land at Roswell Air Park, New Mexico, to support future MIGHTY FORCE exercises.

2. The land and facilities are identified as follows:

a. Building 1116 - Alert Facility - 18,424 square feet, five acres, fenced. Estimated lease cost of $30,000 (Atch 1).

b. Building 1770 - Hound Dog Facility - 26,640 square feet. Estimated lease cost of $24,000 (Atch 1).

c. Building 1776 - 4 Bay Garage - 5,272 square feet. Estimated lease cost of $4,750 (Atch 1).

d. Building 1112 - Ammo Bunker. Estimated lease cost of $1,000.

e. Fuel Bladder Site approximately five acres. Estimated lease cost of $4,500.

f. Alterations of facilities to include start up costs and construction of a new cross runway estimated at $30,000.

2. Request a directive be issued to the Corps of Engineers to provide us with an appraisal of the above facilities and land at Roswell Air Park, New Mexico. Estimated need date of this case is 1 Jun 89.

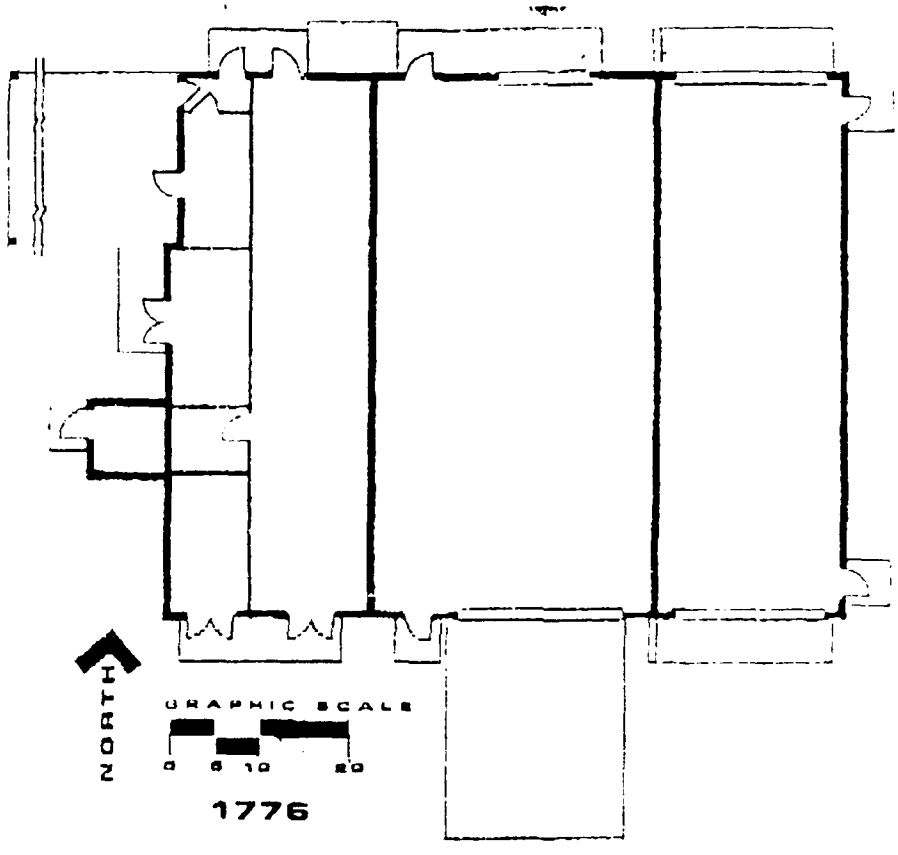
John T. [illegible], Colonel, USAF
Director, Planning and Programming
DCS/Engineering and Services

1 Atch
Listing of Facilities

cc: 8 AF/DE

RETURN TO	FUNC ADDRESS SYM	ORIGINATOR'S NAME AND GRADE	PHONE NO	TYPIST'S INITIALS	DATE TYPED
		[illegible]			27 Feb 89

BLDG 1776



COMMENTS: THIS BUILDING WAS ORIGINALLY USED FOR MISSILE ASSEMBLY SO EACH INDIVIDUAL AREA OR ROOMS HAVE VIRTUALLY BULLET OR EXPLOSIVE PROOF WALLS AND ELECTRIC WIRING. THE ELECTRICAL BUSS DUCTS ARE READILY ACCESSIBLE. SAFETY SHOWERS ARE IN AREAS; IT HAS 2 LARGE BAYS AND 1 LARGE CONTROL BAY AND THE OTHER SUPPORT FACILITIES BACK THIS UP. EXCELLENT BUILDING FOR MILITARY BACK-UP.

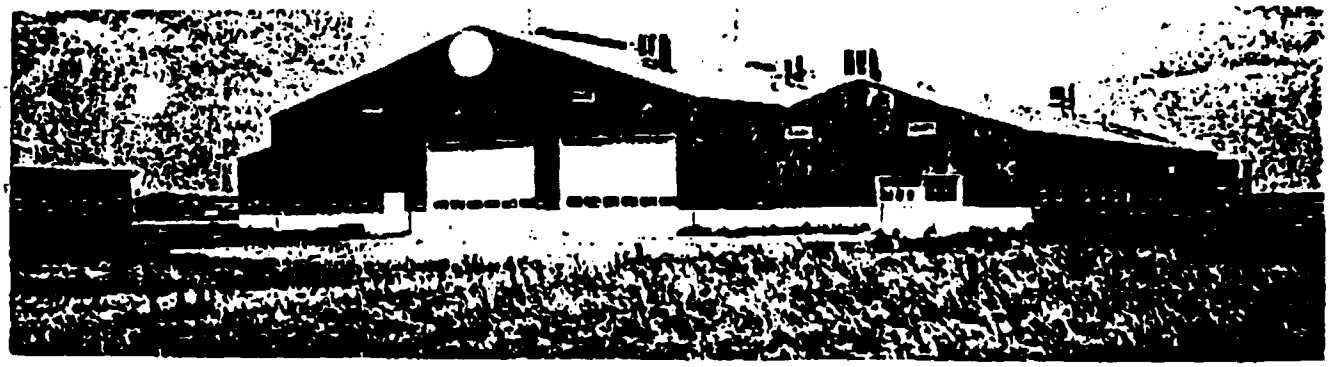
OCCUPANT:	UNOCCUPIED
LEASE EXPIRATION:	N/A
FOOTAGE:	26,640
BUILT:	1961
PRESENT VALUE:	$426,240.00

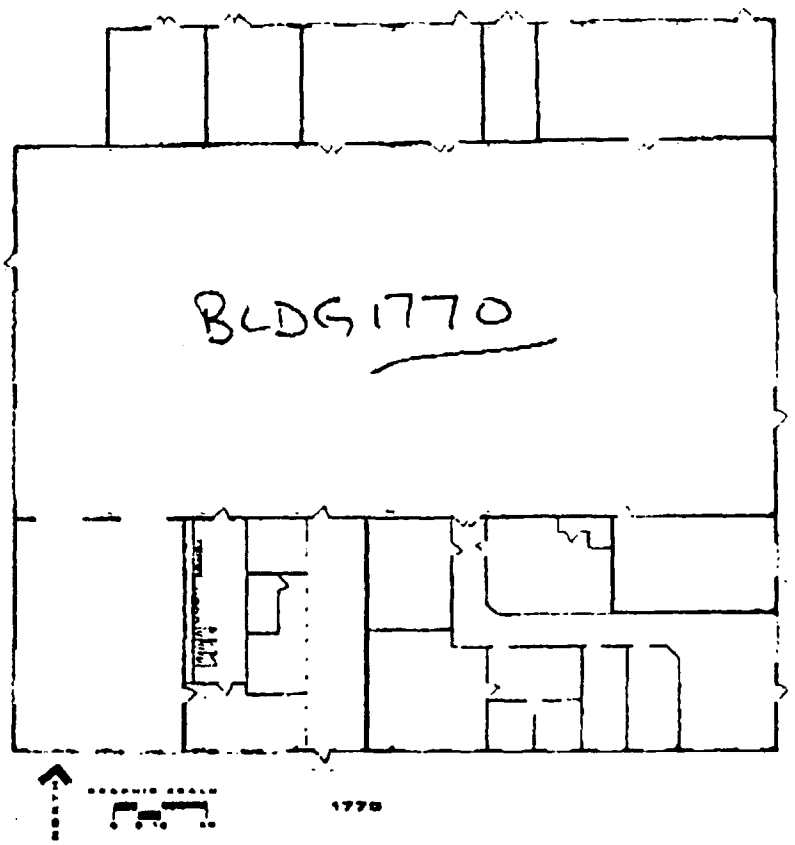
EXISTING CONDITIONS:

1. FOUNDATION:	REINFORCED CONCRETE
2. FLOORS:	EXPOSED CONCRETE IN HANGAR WORK AREA. VINYL TILE IN OTHER ROOMS.
3. WALLS:	CONCRETE BLOCK
4. ROOF:	STEEL BAR JOISTS W/METAL DECK W/BUILT-UP ROOF
5. LANDSCAPING:	NONE
6. UTILITIES:	ALL AVAILABLE
7. ASBESTOS:	NONE NOTED
8. GENERAL DRAINAGE:	GOOD.
9. AVAILABLE PARKING SPACES:	MINUMUM DUE TO FACT IT IS IN A HIGHLY SECURE AREA IN THE MIDDLE OF THE AIR CENTER.
10. ELECTRICAL:	ABOVE REQUIREMENTS. ADEQUATE FOR MILITARY USE.
MECHANICAL:	LOW PRESSURE STEAM. EVAP. COOLING.

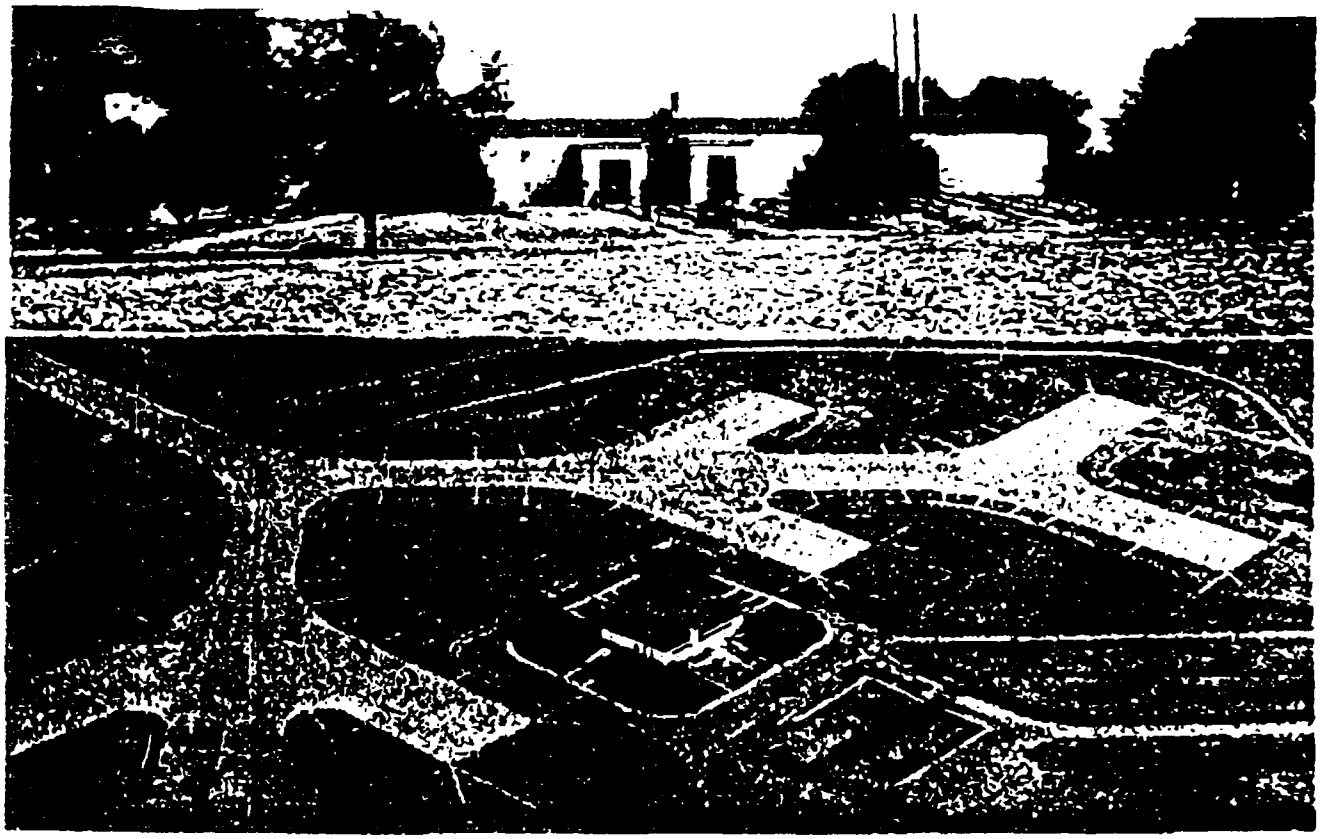
PROJECTED USEFUL LIFE:	FIFTEEN (15) YEARS
POTENTIAL USES:	REPAIR STATION AND READINESS AREA FOR THE VARIOUS NATIONAL GUARD UNITS THAT PLAN TO COME INTO THIS AREA.

RECOMMENDED RENOVATIONS WITH COST ESTIMATES: NEEDS TOUCH-UP. PAINT, PLUMBING AND ELECTRICAL. IN EXCELLENT CONDITION. RECENTLY USED BY NATIONAL GUARD. - $5,000.00.

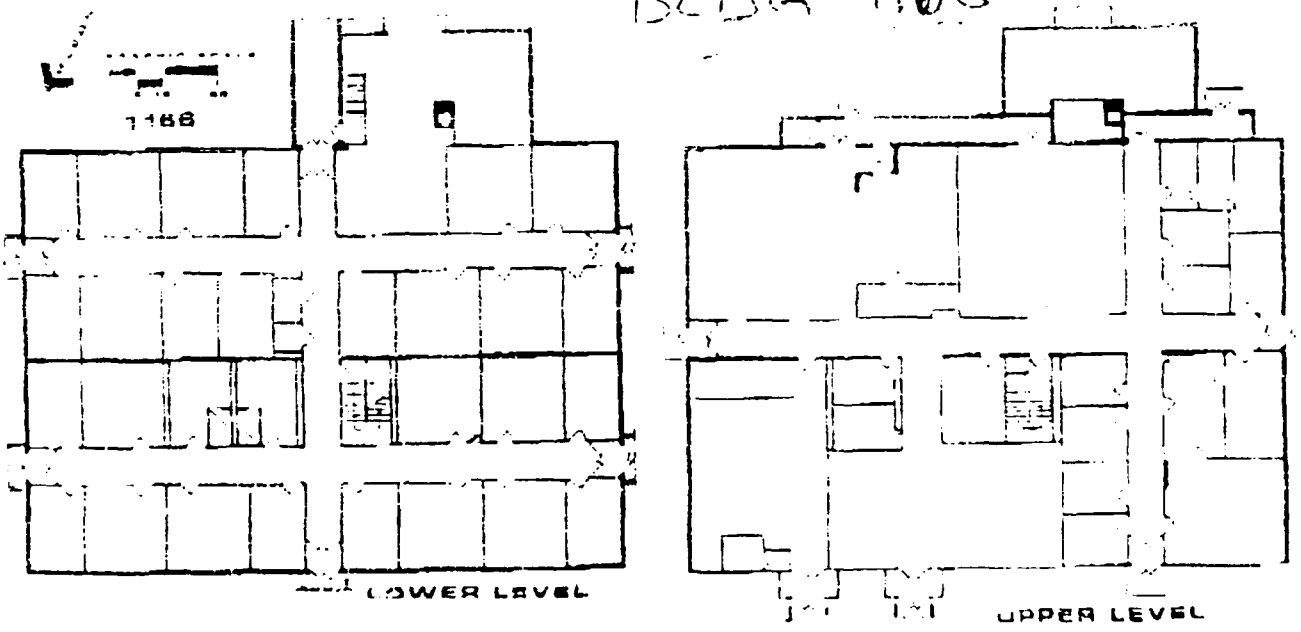




COMMENTS: THIS BUILDING HAS EXCELLENT POTENTIAL USES FOR THE MILITARY UNITS WHO WOULD TEMPORARILY BE ASSIGNED TO THE R.I.A.C. IT WOULD MEET THEIR DEMANDS. IT IS DESIGNED FOR AN AIR FORCE SUPPORT FACILITY AND WOULD FUNCTION AS SUCH QUITE READILY AND IS AVAILABLE WHEN THE MILITARY UNITS COME INTO THE AREA. THE BUILDING'S ELECTRICAL AND MECHANICAL ARE OVER AND ABOVE THE CIVILIAN DEMANDS AS WE NOTED BUT ARE NECESSARY AND ADEQUATE FOR THE DIFFERENT ORGANIZATIONS WHO WOULD BE USING IT. THERE IS A 600 AMP BREAKER, 3 PHASE POWER, OPERABLE 7 1/2 TON CRANE AND HAS A FULL SPRINKLER SYSTEM. THE BUILDING WAS ORIGINALLY USED FOR ASSEMBLY OF MISSILES AND THERE IS A FULL AMMONIA SYSTEM WHICH WAS USED AS PART OF THE COOLING SYSTEM IN THE MISSILES.



BLDG 1106



COMMENTS: THIS BUILDING IS REMOTELY LOCATED FROM THE FLIGHT LINE AREA ON THE EAST SIDE OF THE INDUSTRIAL AIR CENTER AND WOULD NOT LEND ITSELF TO OTHER FLIGHT LINE OPERATIONS. IT IS IN GOOD CONDITION. THE BUILDING IS CLEAN. IT WAS RECENTLY USED BY AN AIR FORCE TEAM AND IT IS OUR BELIEF THAT A MINIMUM AMOUNT OF CLEAN UP AND FIX UP WILL HAVE TO BE DONE TO KEEP THIS BUILDING IN GOOD OPERATING CONDITION.

PAGE [illegible]

Appendix E: Land Use: Roswell District

Edited and published by the Bureau of Land Management

Base map prepared by the U.S. Geological Survey
Compiled from USGS 1:24 000 and 1:62 500-scale topographic maps dated 1947-1979. Planimetry revised from aerial photographs taken 1975 and other source data. Revised information not field checked. Map edited 1979

Projection and 10 000-meter grid, zone 13,
Universal Transverse Mercator
25 000-foot grid ticks based on New Mexico coordinate system, east and central zones
1927 North American datum
To place on the predicted North American Datum 1983 move the projection lines 7 meters south and 48 meters east

MAP PAGE RELATIONSHIPS

	1	2	3	4
	5	6	7	8
9	10	ROSWELL	12	13
14	15	16	17	18

CONTOUR INTERVAL 10 METERS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ELEVATIONS SHOWN TO THE NEAREST METER

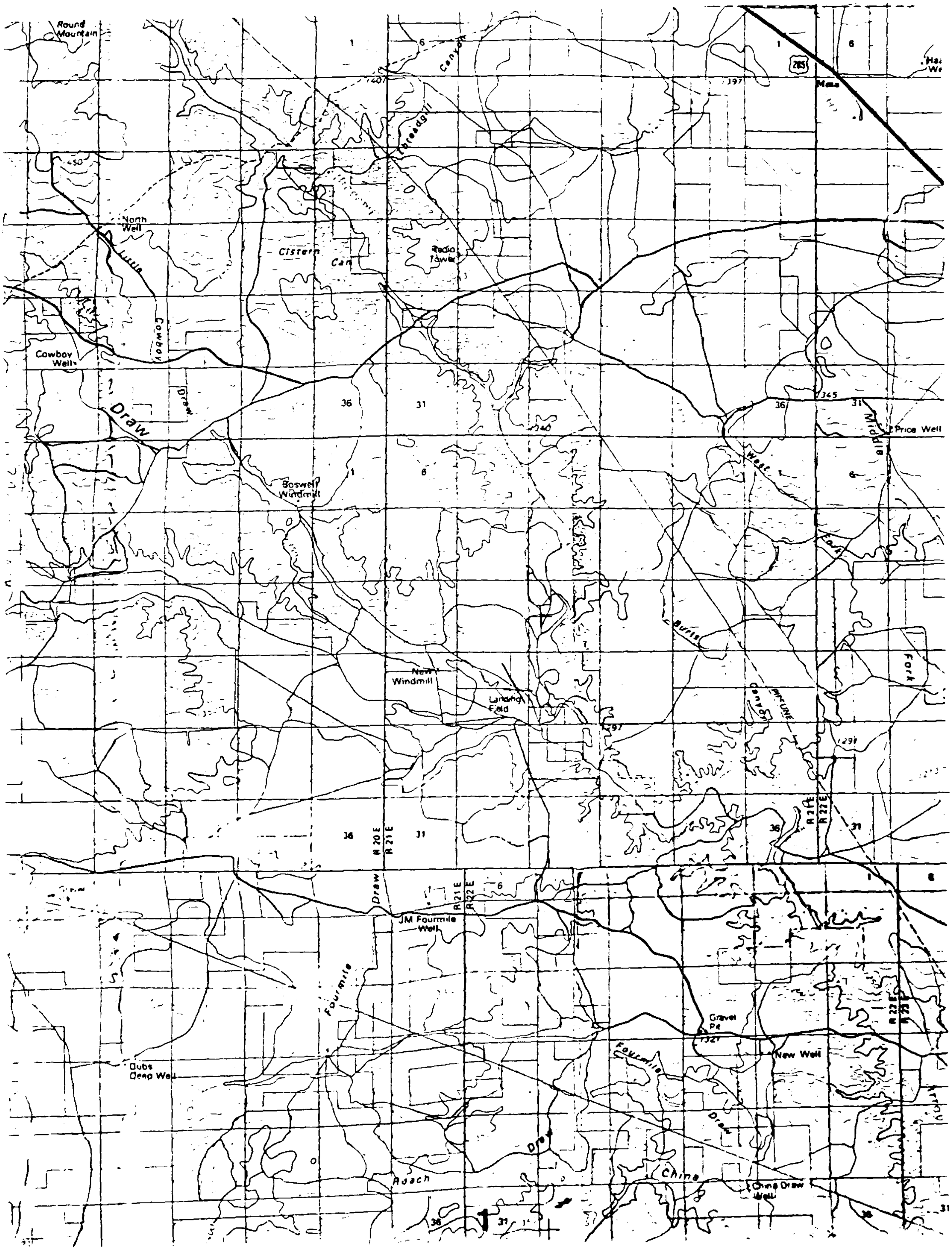
SCALE 1:100 000

1 CENTIMETER ON THE MAP REPRESENTS 1 KILOMETER ON THE GROUND
CONTOUR INTERVAL 10 METERS

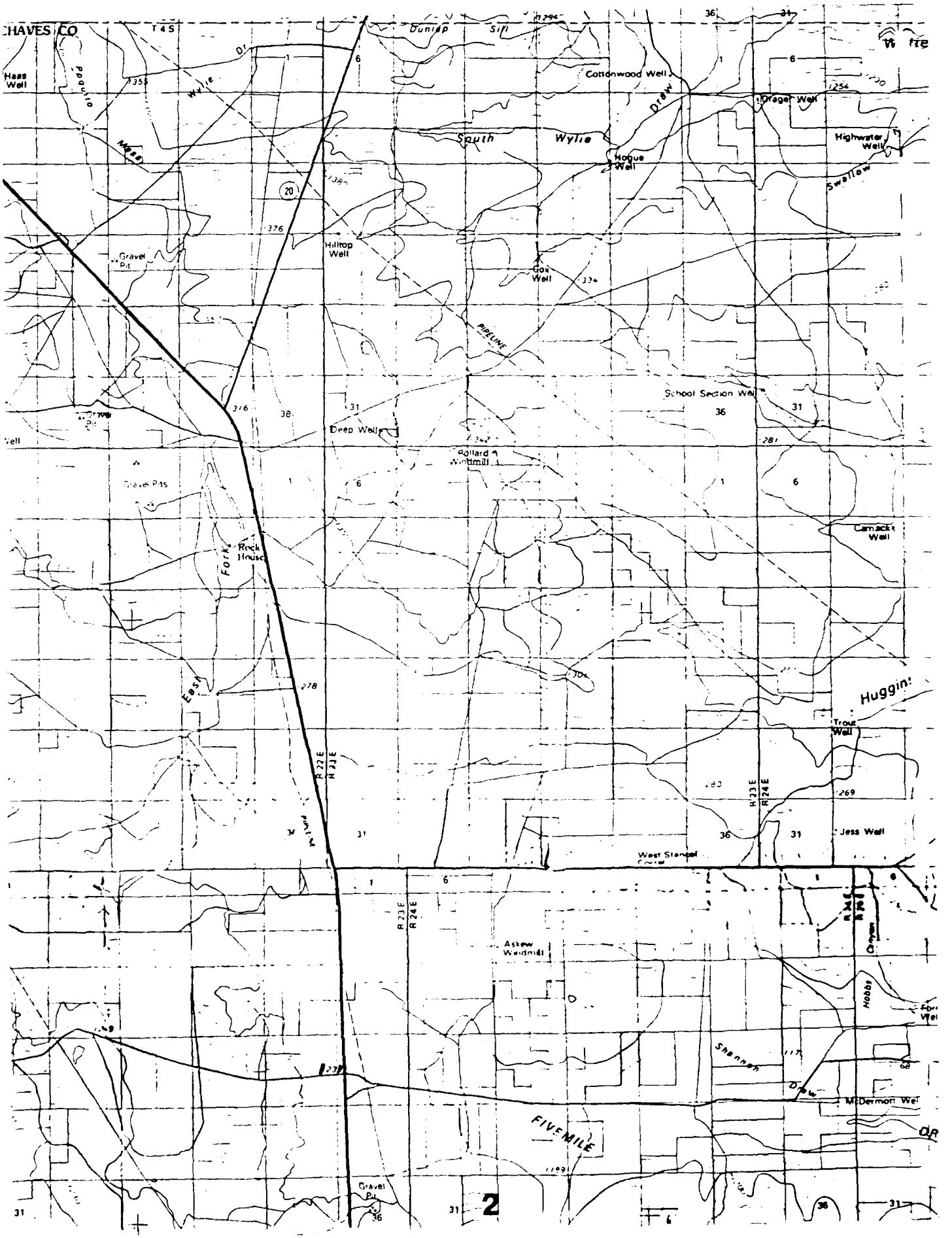
Public Lands (Administered By Bureau of Land Management)	
Oregon & California Lands (O&C Lands) Coos Bay Wagon Road (CBWR)	NONE
National Forest	NONE
National Grasslands	NONE
Bankhead-Jones Land Use Lands (L.U. Lands)	NONE
Tennessee Valley Authority	NONE
Patented Lands	
State Lands	
National Parks and Monuments	NONE
Indian Lands or Reservations	NONE
Military Reservations and Withdrawals Corps of Engineers	NONE
Wildlife Refuges	
Water and Power Resources Service	
Power Withdrawals and Classifications	NONE
Federal Agency Protective Withdrawals	NONE
Public Water Reserves	NONE

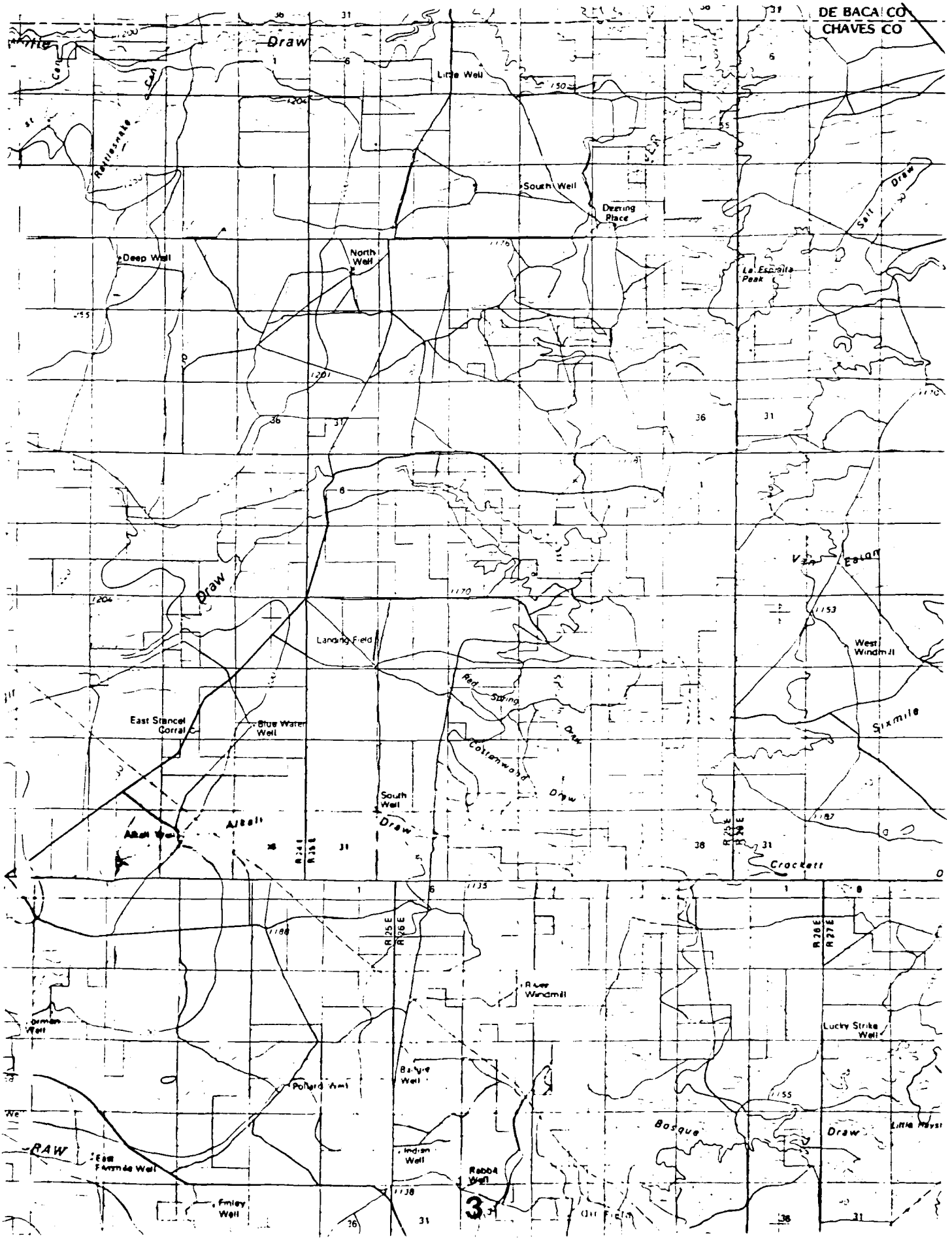
Topographic Map Symbols

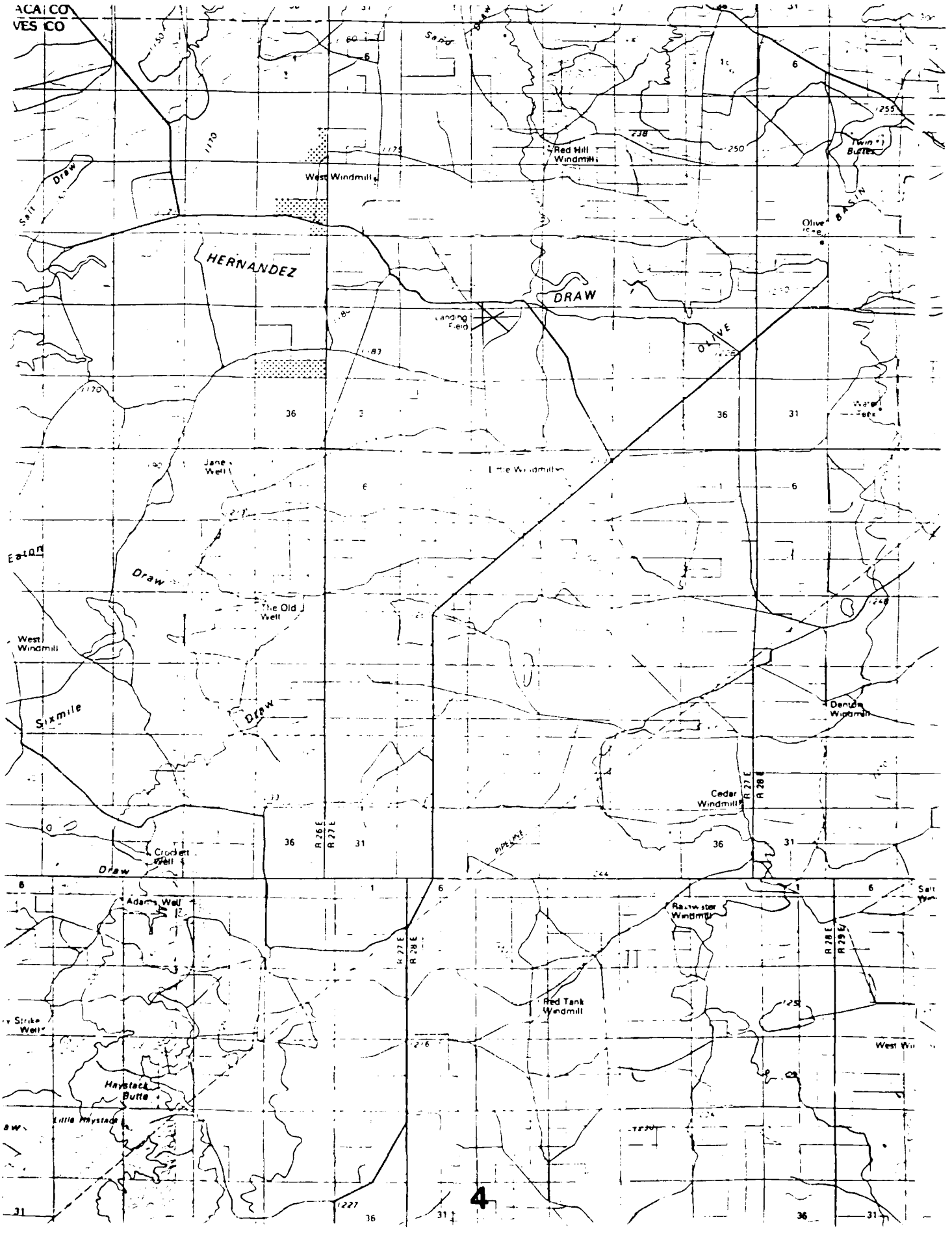
- Primary highway, hard surface
- Secondary highway, hard surface
- Light duty road, principal street, hard or improved surface
- Other road or street; trail
- Route marker: Interstate, U.S., State
- Railroad: standard gage, narrow gage
- Bridge, overpass, underpass
- Tunnel: road; railroad
- Built up area; locality; elevation
- Airport, landing field, landing strip
- National boundary
- State boundary
- County boundary
- National or State reservation boundary
- Land grant boundary
- U.S. public lands survey range, township, section
- Range, township, section line, protracted
- Power transmission line; pipeline
- Dam; dam with lock
- Cemetery; building
- Windmill, water well, spring
- Mine shaft; adit or cave, mine, quarry, gravel pit
- Campground, picnic area, U.S. location monument
- Ruins; cliff dwelling
- Distorted surface: strip mine, lava, sand
- Contours: index, intermediate, supplementary
- Bathymetric contours index, intermediate
- Stream, lake: perennial, intermittent
- Rapids, large and small; falls, large and small
- Area to be submerged, marsh, swamp
- Land subject to controlled inundation

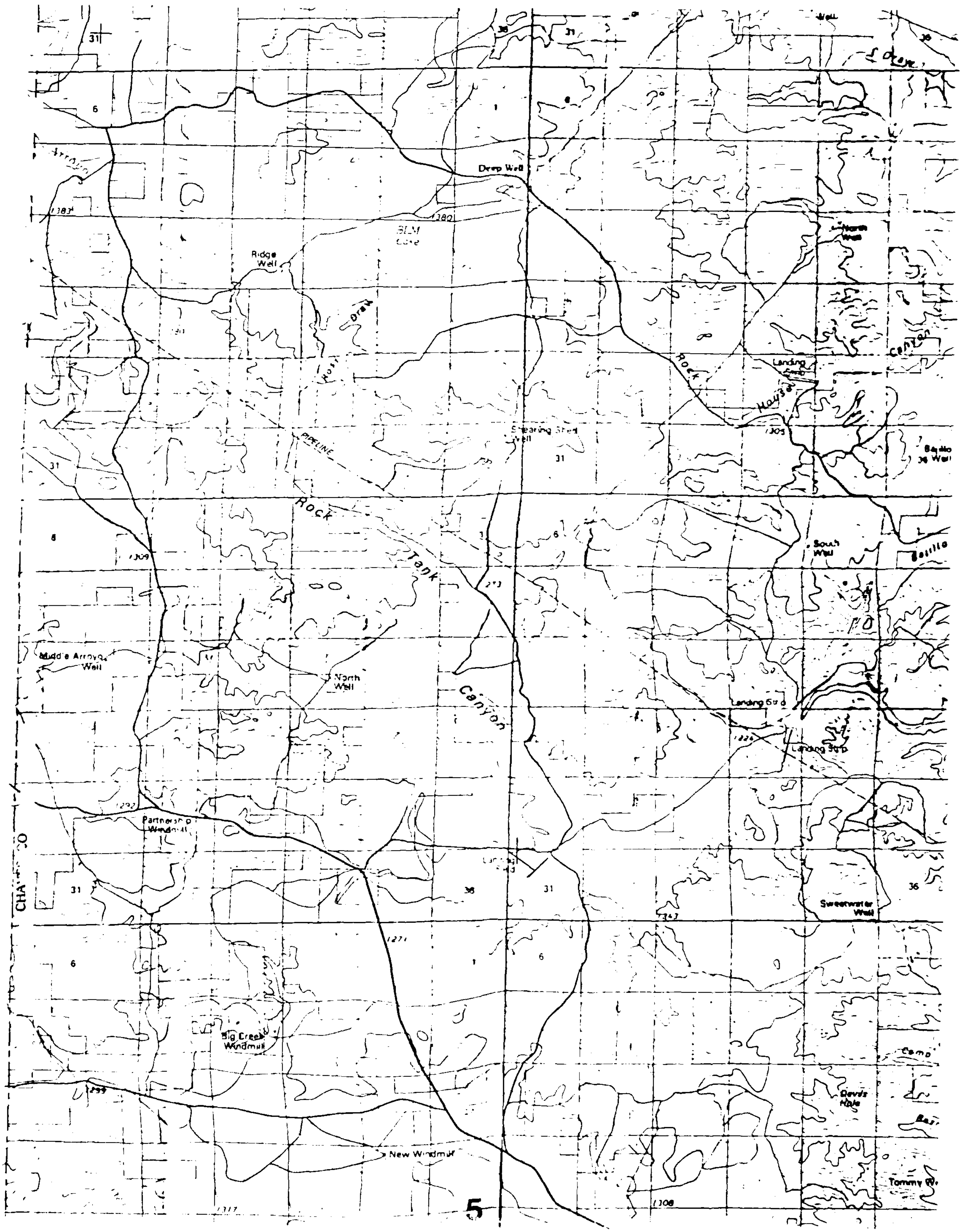


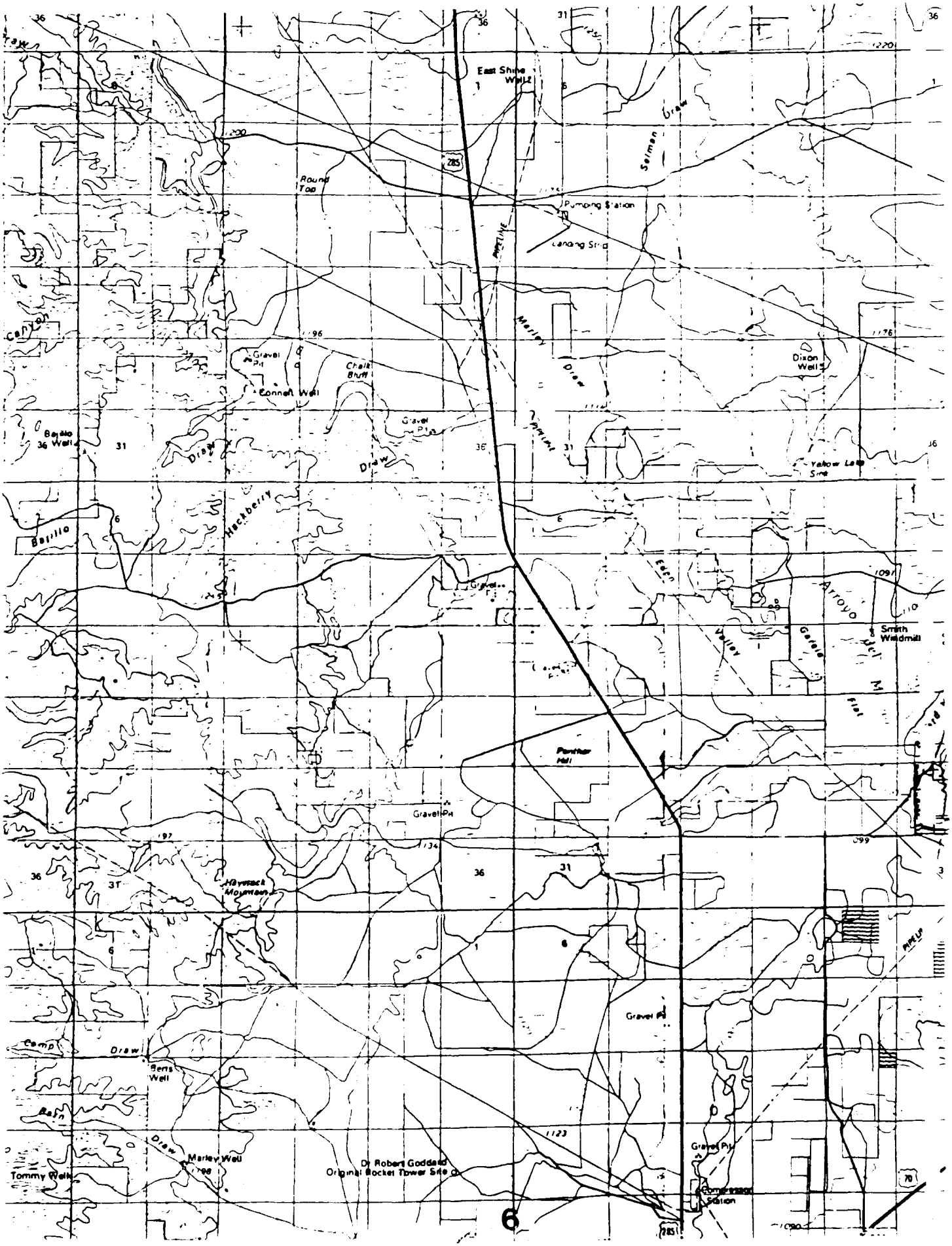
Round Mountain
285
Mesa
North Well
Little
Cowboy
Cowboy Well
Draw
Cistern
Can
Radio Tower
Canyon
Boswell Windmill
New Windmill
Landing Field
Burts
Canyon
West
Fork
Middle
Fork
Price Well
R 20 E
R 21 E
R 22 E
R 23 E
JM Fourmile Well
Fourmile
Draw
Dubs Deep Well
Gravel Pit
New Well
Fourmile
Draw
Roach
Draw
China
China Draw Well

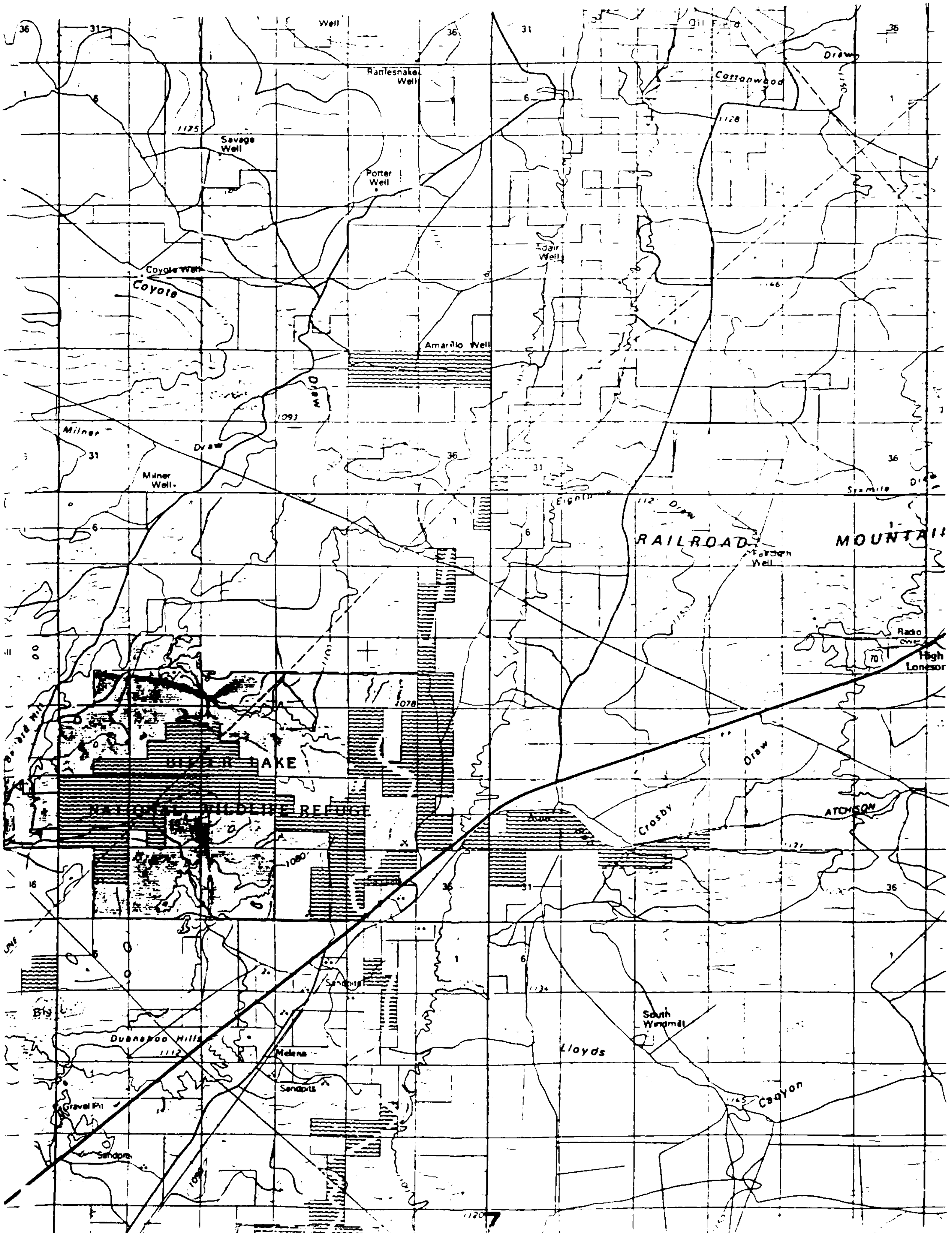

CHAVES CO
T 4 S
Dunlap
Sill
Haas Well
Wylie
Cottonwood Well
Drew
Drager Well
South
Wylie
Highwater Well
Hogue Well
Swallow
Hilltop Well
Gas Well
Gravel Pit
PIPELINE
School Section Well
Deep Well
Pollard Windmill
Gravel Pits
Camack Well
Rock House
Fork
East
Huggins
Trout Well
R 22 E
R 23 E
R 24 E
Jess Well
West Stengel
Askew Windmill
Hobbs
Shannon
McDermott Well
FIVE MILE
Gravel Pit

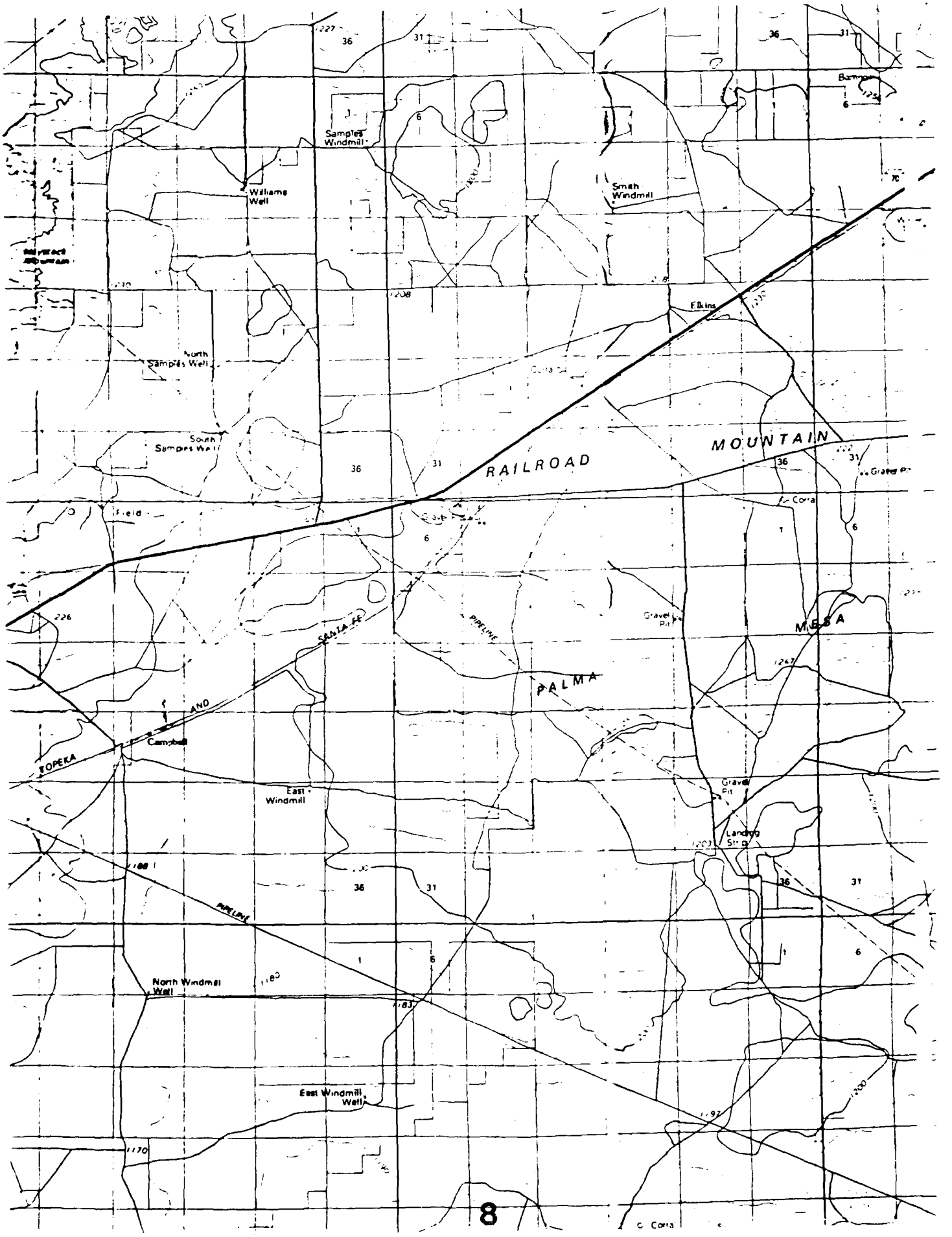

DE BACA CO
CHAVES CO
Draw
Little Well
South Well
Deering Place
Salt Draw
Deep Well
North Well
La Escalita Peak
Draw
Landing Field
West Windmill
Red String Draw
East Stancel Corral
Blue Water Well
Colonwood Draw
South Well Draw
Sixmile
Crockett
R25E
R26E
R27E
River Windmill
Lucky Strike Well
Bosque
Draw
RAW
Indian Well
Rabbit Well
3

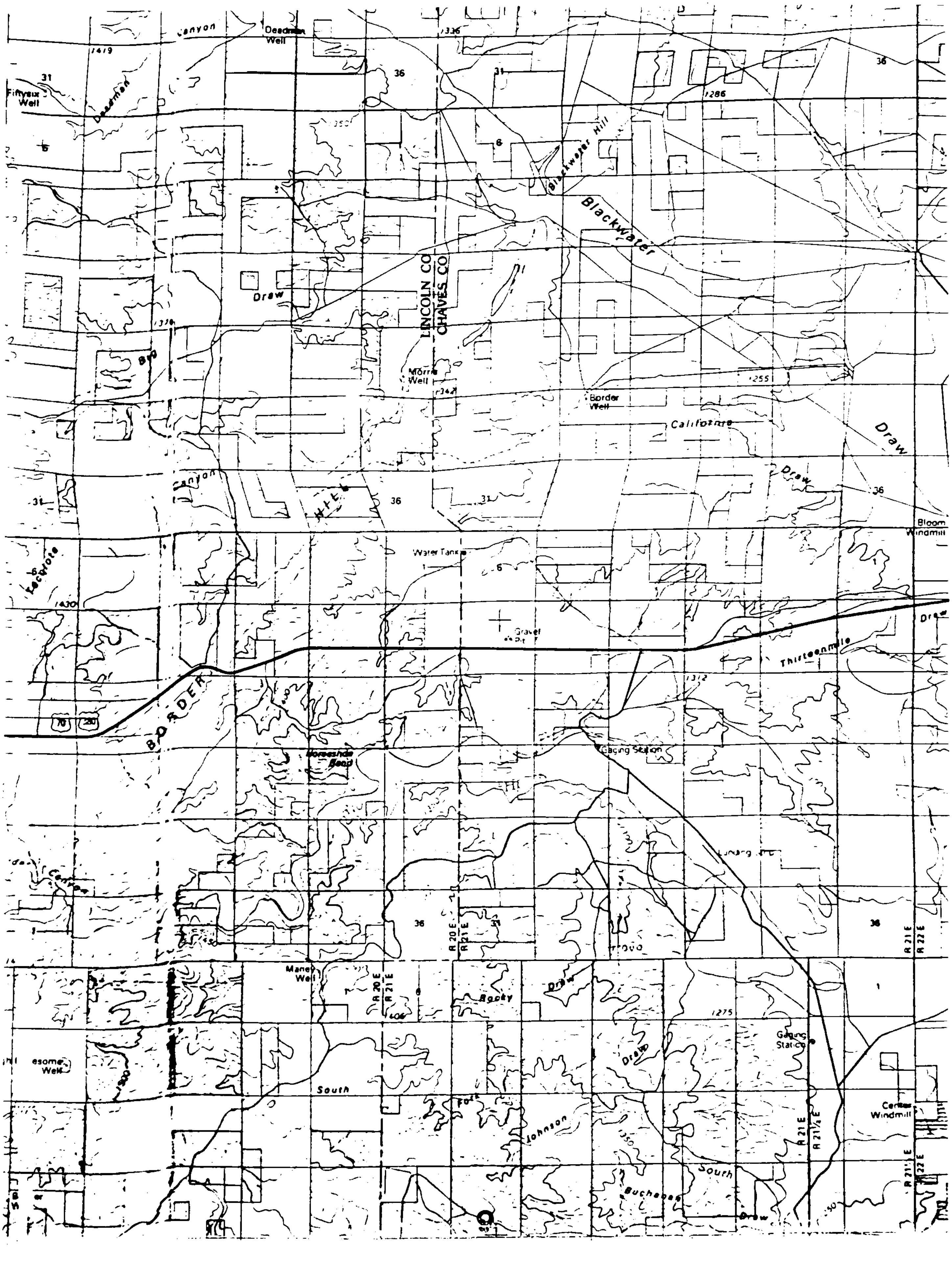

HERNANDEZ
DRAW
OLIVE
BASIN
Red Hill Windmill
West Windmill
Twin Buttes
Olive
Landing Field
Water Tank
Jane's Well
Little Windmill
Eaton
Draw
The Old Well
West Windmill
Sixmile
Draw
Denude Windmill
Cedar Windmill
Crockett Well
Draw
PIPE LINE
Adams Well
Rainbow Windmill
Red Tank Windmill
Strike Well
Haystack Butte
Little Haystack
West Windmill
36
31
6
1
R 26 E
R 27 E
R 28 E
R 29 E

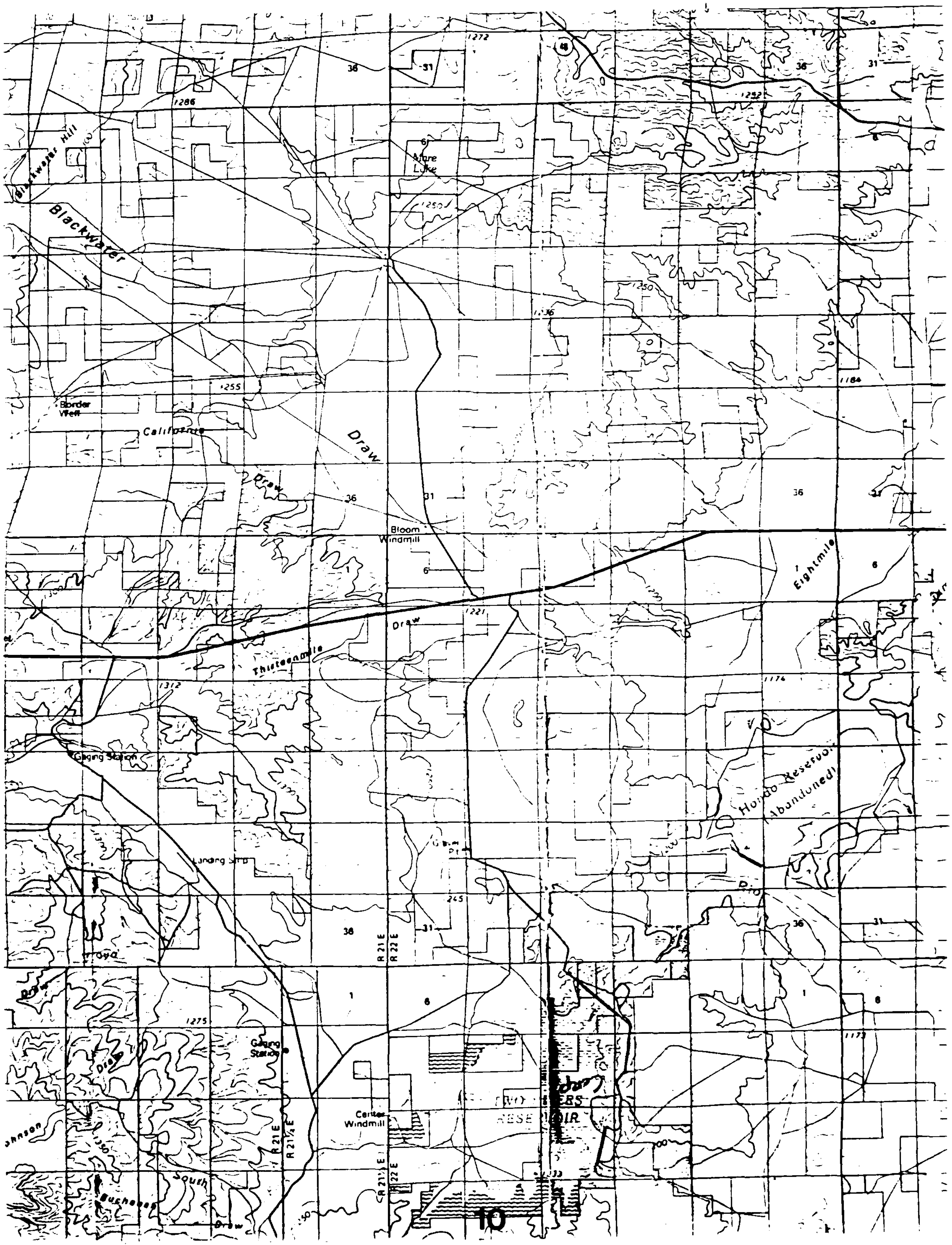

Deep Well
Ridge Well
BLM Cave
PIPELINE
Shearing Shed Well
Rock Tank Canyon
Rock House Canyon
Landing Strip
South Well
North Well
North Well
Partnership Windmill
Big Creek Windmill
New Windmill
Sweetwater Well
Devils Hole
Landing Strip

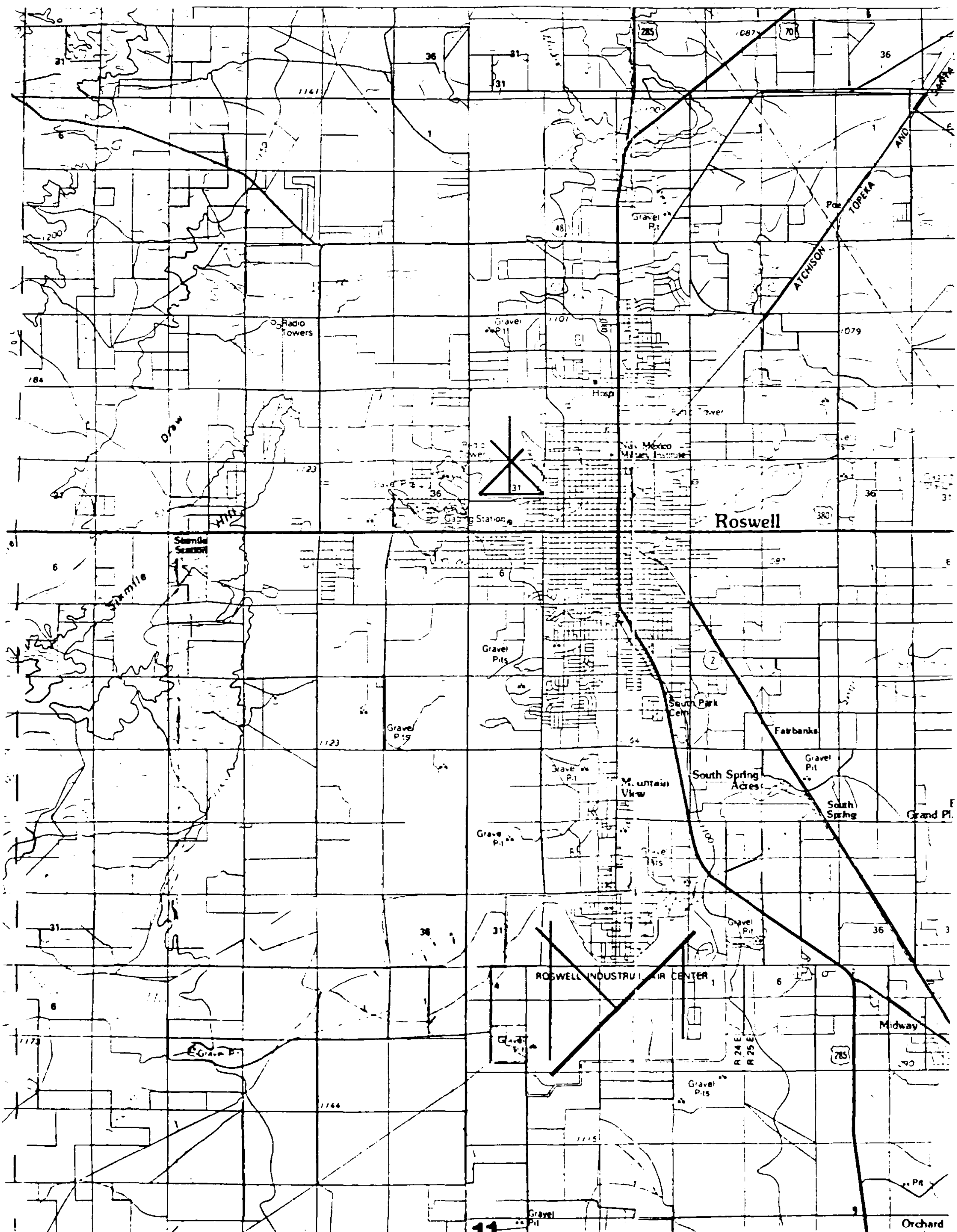

East Shinn Well
Round Top
Pumping Station
Landing Strip
Salmon Draw
Pipeline
Valley Draw
Gravel Pit
Chalk Bluff
Connell Well
Dixon Well
Bajada 36 Well
Draw
Yellow Leaf Sink
Blackberry
Borrillo
Eden Valley
Arroyo
Smith Windmill
Panther Hill
Haystack Mountain
Camp Draw
Berry Well
Marley Well
Tommy Well
Dr Robert Goddard Original Rocket Tower Site
Compressor Station


Well
Oil Field
Draw
Cottonwood
Rattlesnake Well
Savage Well
Potter Well
Adair Well
Coyote Well
Coyote
Amarillo Well
Draw
Milner
Draw
Milner Well
Eightmile
Draw
Sixmile
RAILROAD
MOUNTAI
Well
Radio Tower
High Lonesome
BITTER LAKE
NATIONAL WILDLIFE REFUGE
Crosby
Draw
ATCHISON
Sandpits
South Windmill
Duenahoo Hills
Lloyds
Melena
Sandpits
Canyon
Gravel Pit
Sandpits

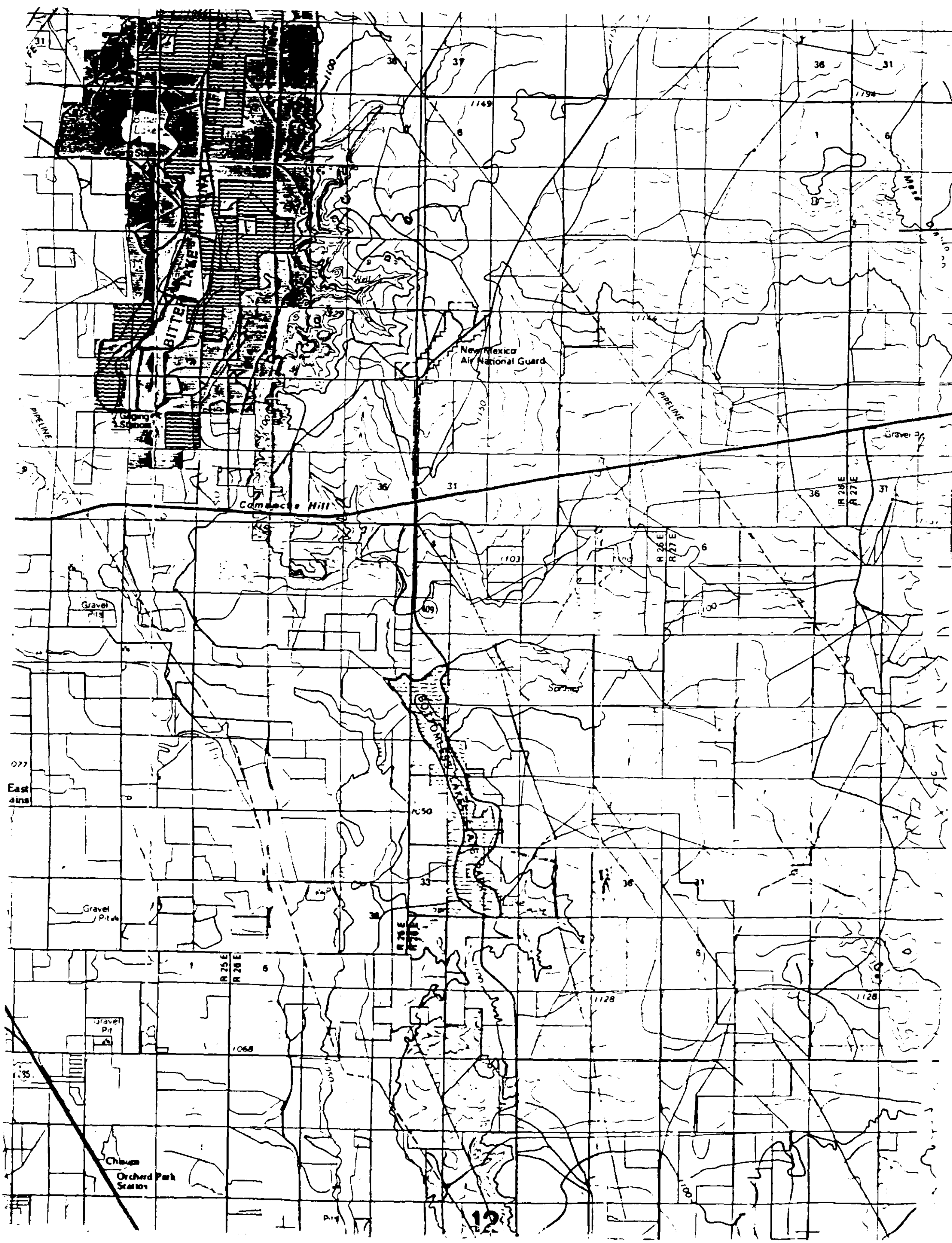

Samples Windmill
Williams Well
Smith Windmill
North Samples Well
South Samples Well
RAILROAD
MOUNTAIN
MESA
PALMA
SANTA FE
PIPELINE
TOPEKA
AND
Campbell
East Windmill
North Windmill Well
East Windmill Well
Gravel Pit
Landing Strip
36
31
6
1

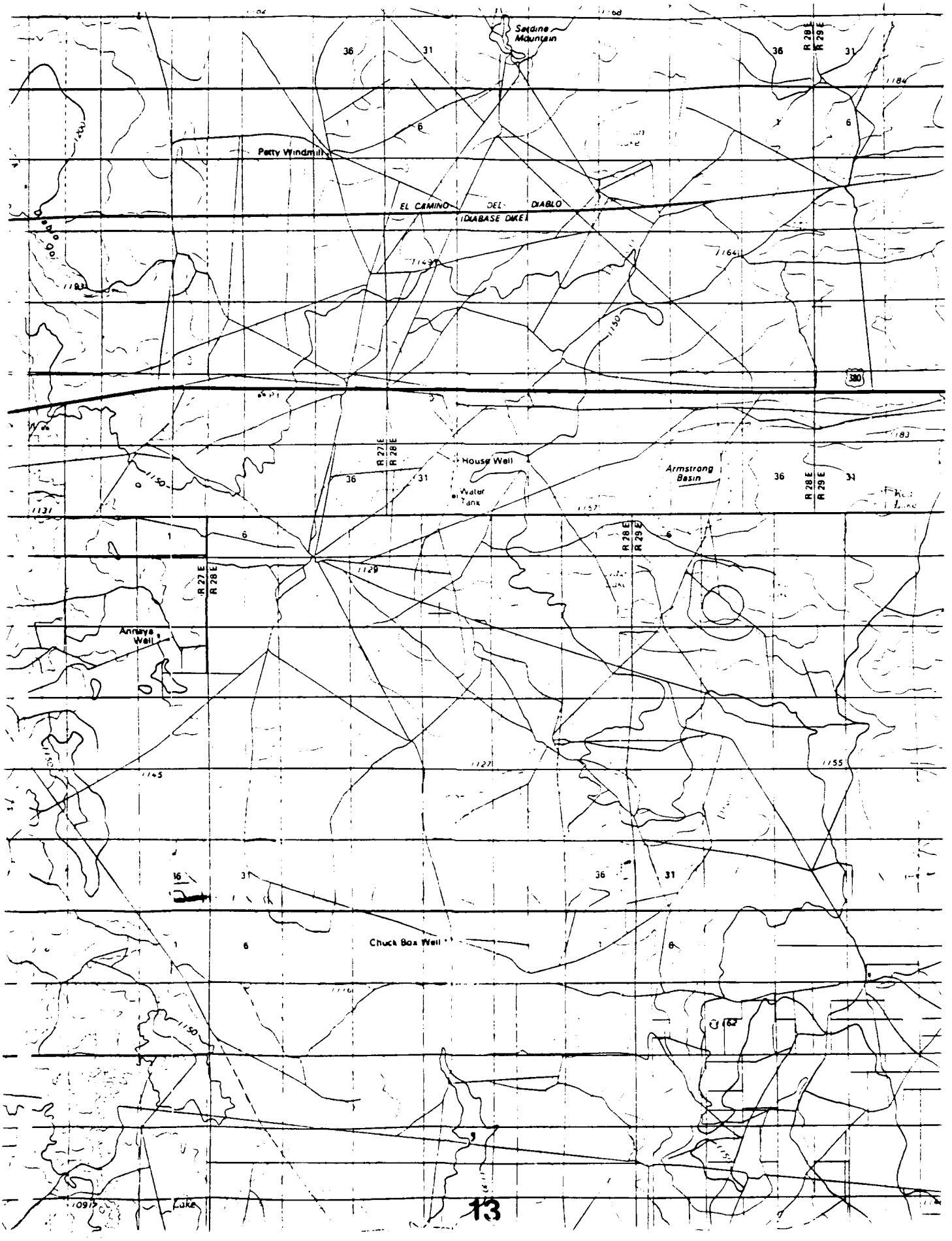

Deadman Well
Fiftysix Well
Deadman
Canyon
Blackwater Hill
Blackwater
Draw
LINCOLN CO
CHAVES CO
Morris Well
Border Well
California
Draw
Big
Canyon
Bloom Windmill
Water Tank
Gravel Pit
Thirteenmile
Draw
BORDER
70
285
Horseshoe Bend
Gaging Station
Canyon
Maney Well
Rocky
Draw
Gaging Station
Draw
South
Fork
Johnson
South
Buchanan
Draw
Center Windmill
R 20 E
R 21 E
R 22 E
R 21½ E

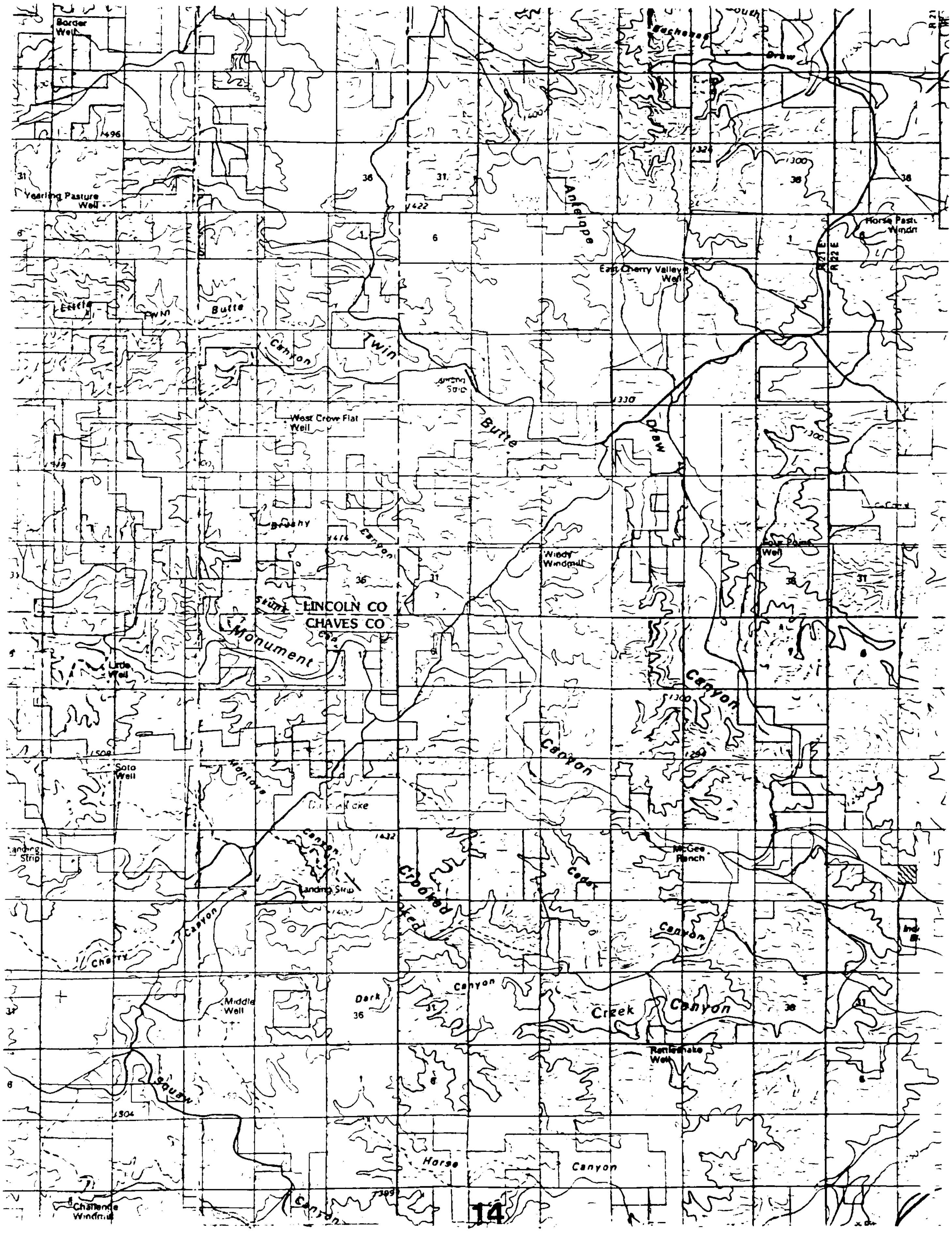

Blackwater Hill
Blackwater
Mare Lake
Border Well
California
Draw
Draw
Bloom Windmill
Thirteenmile
Draw
Eightmile
Gaging Station
Landing Strip
Hondo Reservoir (Abandoned)
Gaging Station
Center Windmill
South
Draw
R 21 E
R 22 E
R 21½ E

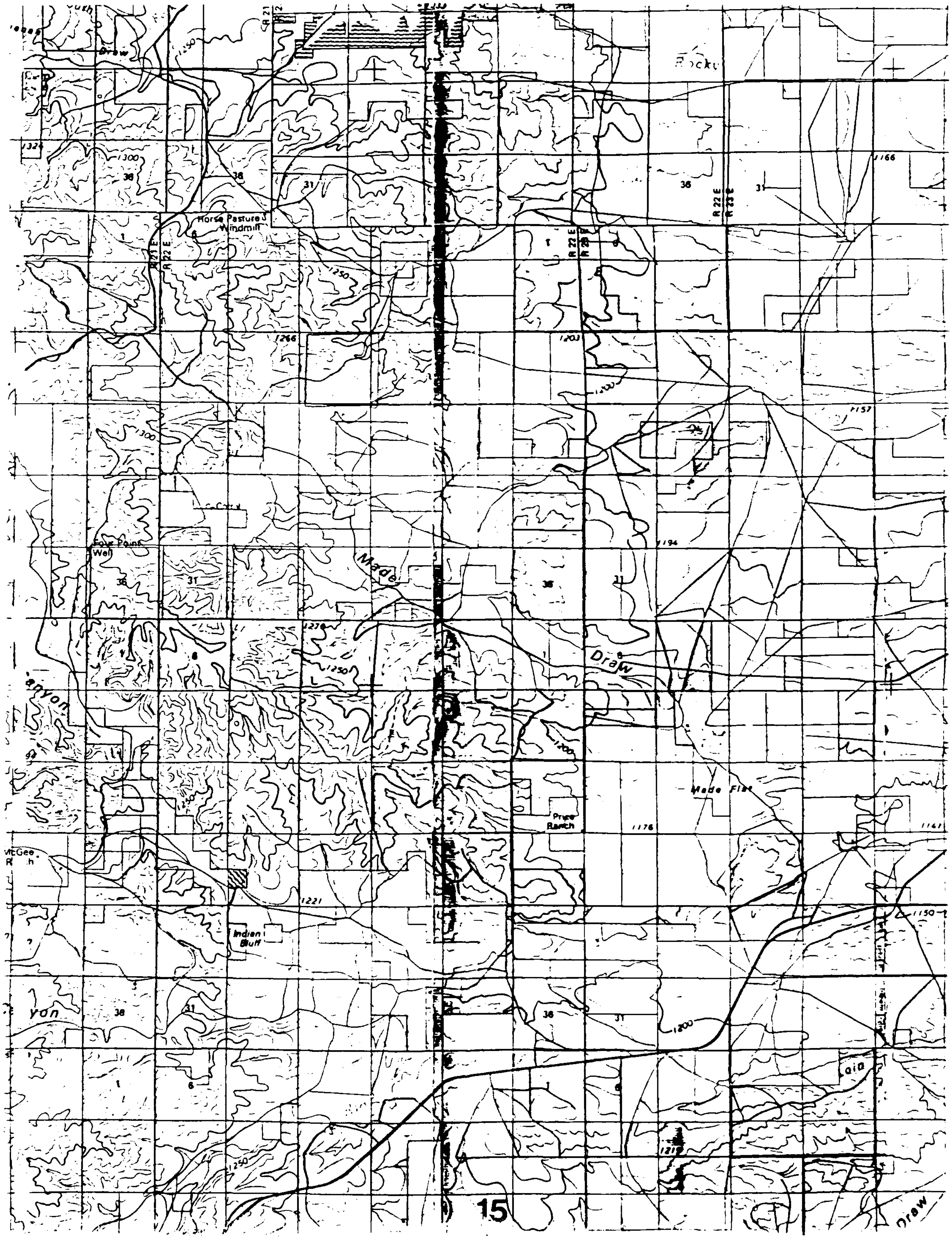


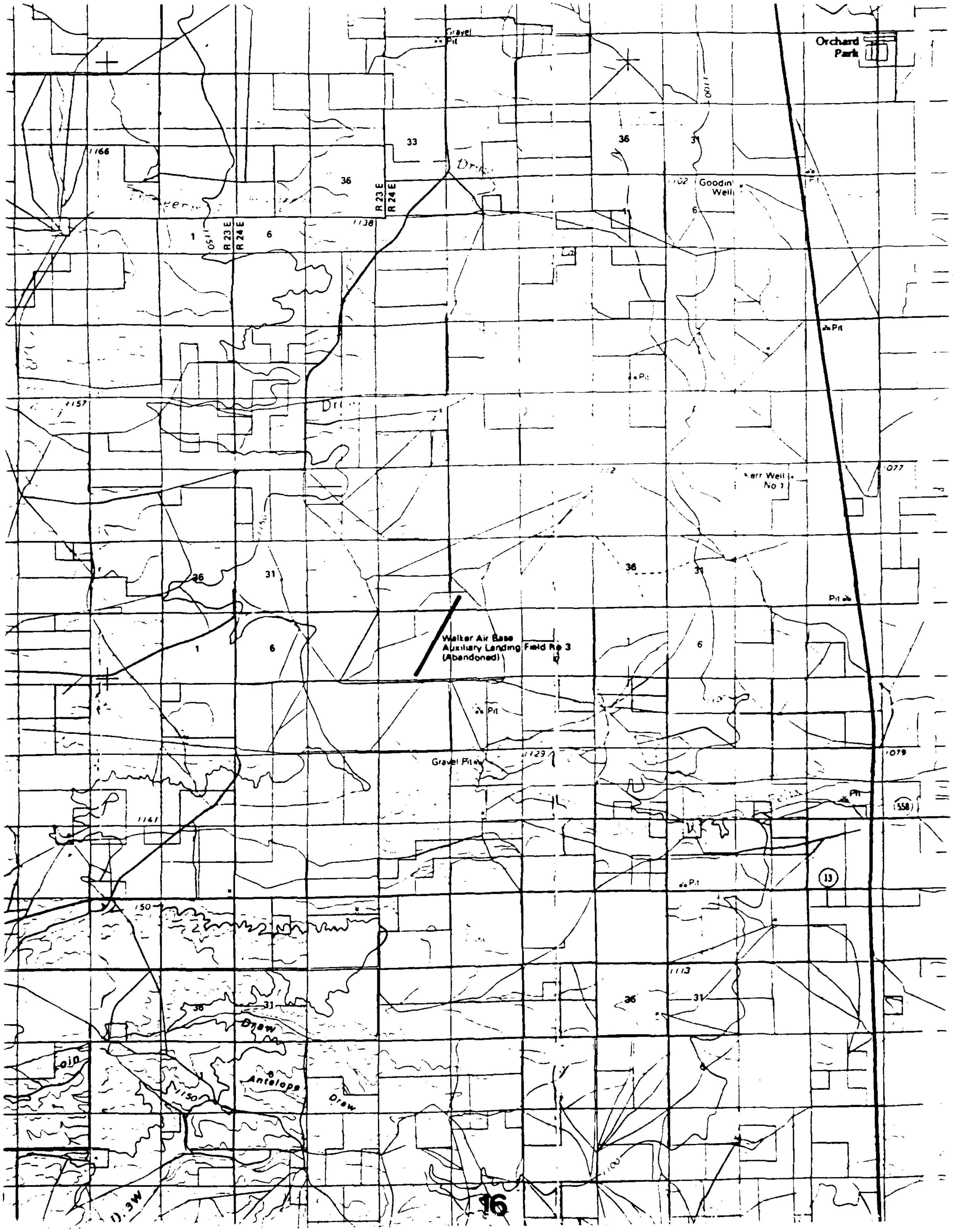
Radio
Towers
Gravel
Pit
Hosp
Draw
Hill
Roswell
Gas Station
Gravel
Pits
South Park
Cem
Fairbanks
South Spring
Acres
South
Spring
Grand Pl.
ATCHISON
TOPEKA
AND
Pole
Gravel
Pits
Midway
R 24 E
R 25 E
Orchard

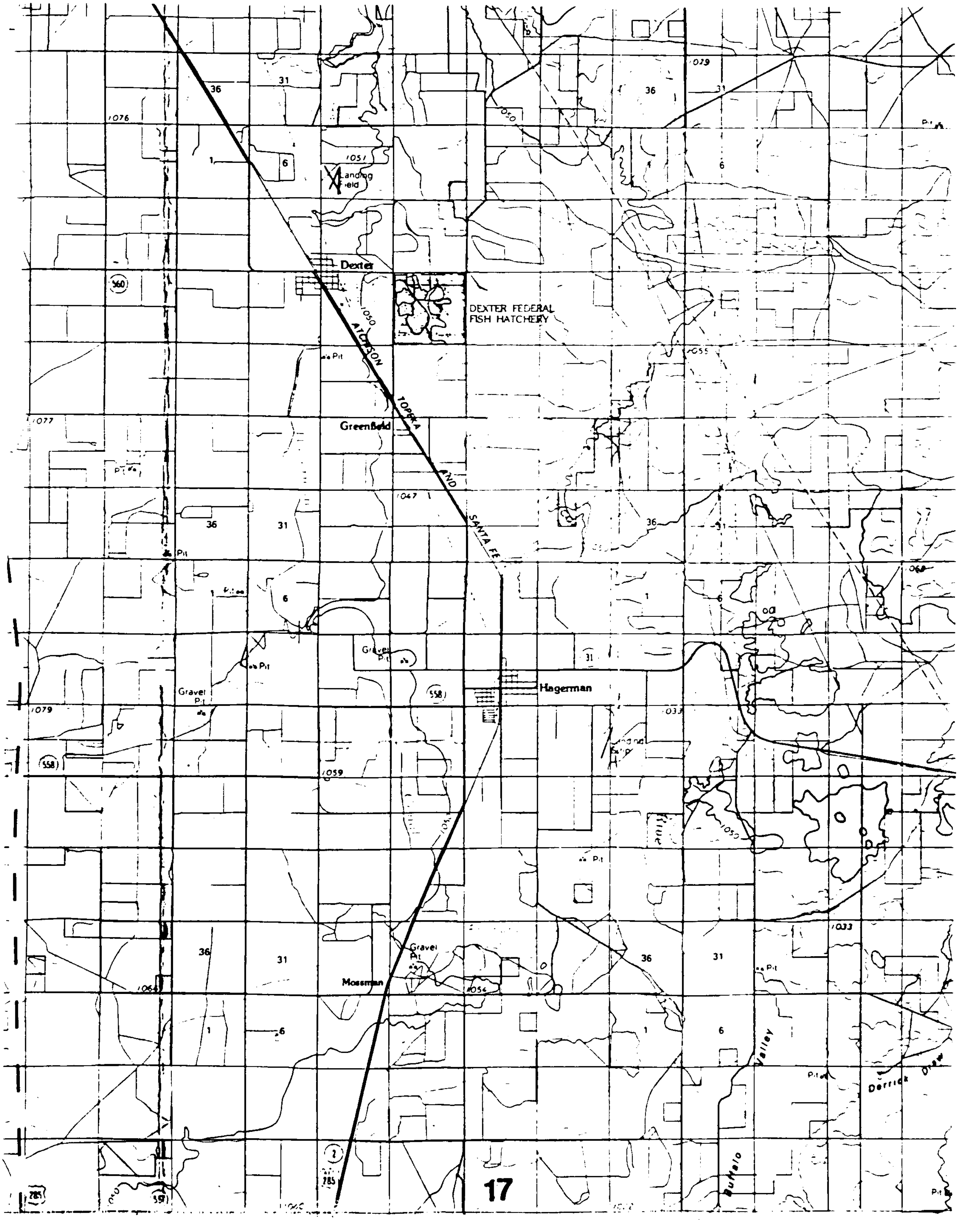

BITTER LAKE
New Mexico
Air National Guard
PIPELINE
PIPELINE
Comanche Hill
Gravel Pits
Gravel Pits
Gravel Pit
409
R 25 E
R 26 E
R 26 E
R 27 E
East
Chisum
Orchard Park
Station
1103
1128
1128
1068
12

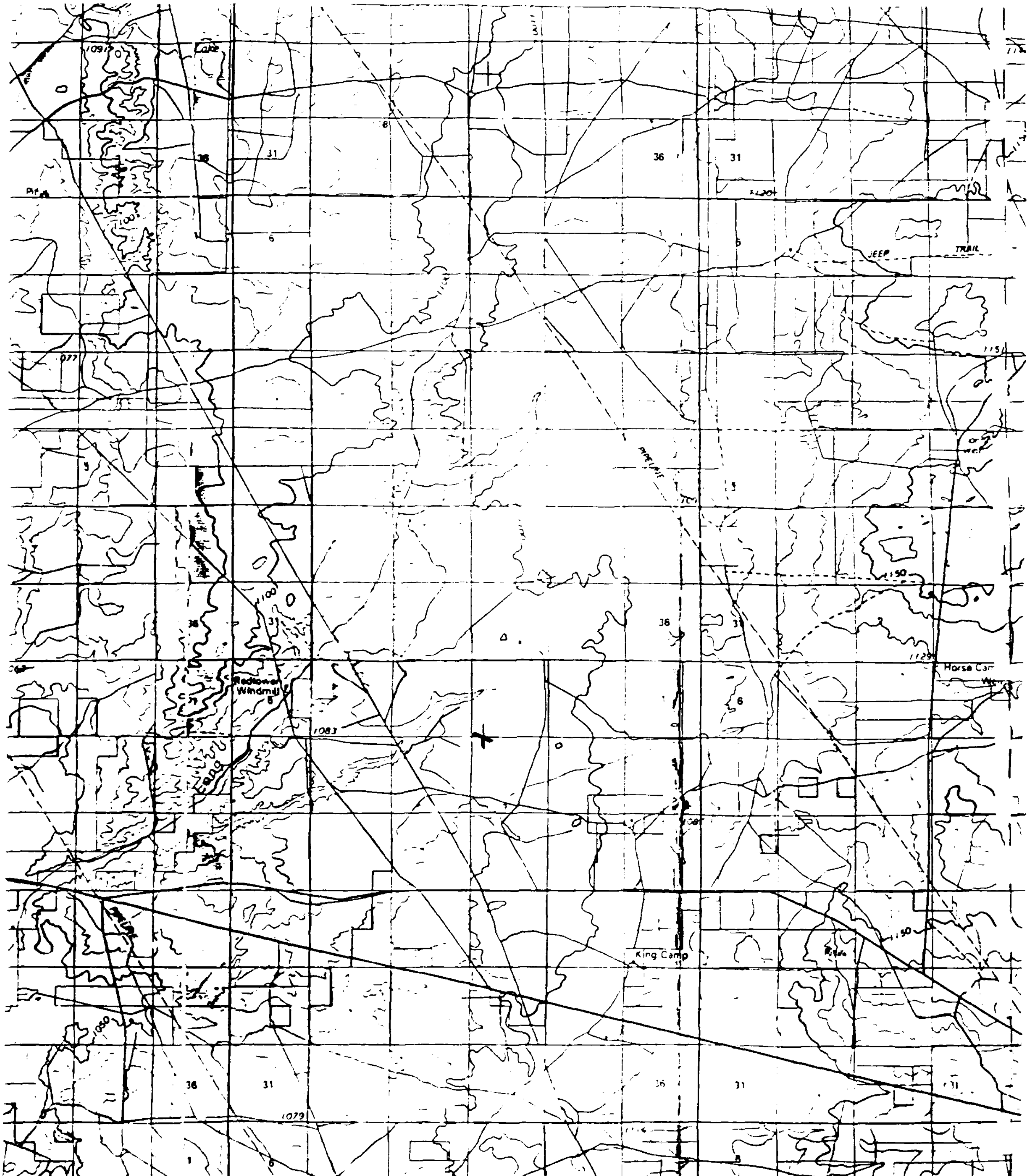

Sedona Mountain
Petty Windmill
EL CAMINO DEL DIABLO
(DIABASE DIKE)
House Well
Water Tank
Armstrong Basin
Annaya Well
Chuck Box Well
Lake
R 27 E
R 28 E
R 29 E
36
31
6
1
16


Border Well
Yearling Pasture Well
Antelope
East Cherry Valley Well
Twin
Butte
Canyon
Draw
West Crow Flat Well
Brushy
Canyon
Windy Windmill
LINCOLN CO
CHAVES CO
Monument
Canyon
Soto Well
Landing Strip
McGee Ranch
Crooked
Cedar
Canyon
Cherry
Canyon
Middle Well
Dark
Canyon
Creek
Canyon
Squaw
Horse
Canyon


Horse Pasture Windmill
R 21 E
R 22 E
R 23 E
Four Points Well
Made
Draw
Made Flat
Price Ranch
Indian Bluff
1250
1300
1266
1203
1157
1166
1194
1276
1200
1176
1161
1221
1150
1219


Gravel Pit
Orchard Park
33
36
R 23 E
R 24 E
Goodin Well
Walker Air Base
Auxiliary Landing Field No 3
(Abandoned)
Gravel Pit
Pit
Antelope Draw
Draw
1138
1166
1157
1129
1141
1113
1079
1077
558
13


36
31
36
31
1076
1050
1079
Landing Field
1051
6
1
6
Dexter
360
DEXTER FEDERAL FISH HATCHERY
1050
ATCHISON TOPEKA AND SANTA FE
Pit
1055
1077
Greenfield
1047
36
31
36
31
Pit
6
1
6
Gravel Pit
Gravel Pit
558
31
Hagerman
1079
1033
558
1059
1050
Pit
Gravel Pit
1033
36
31
36
31
Mossman
1056
1054
Pit
1
6
1
6
Valley
Derrick Draw
Pit
Buffalo
2
285
285
557
Pit
17


JEEP
TRAIL
King Camp
36
31
1083
1079
1150

Appendix F: Definition of Noise Impacts

Definition of Noise Impacts

1.0 Noise Measurement

The decibel (dB) is the accepted standard unit for measuring noise levels. It is generally adjusted to the "A-weighted" logarithmic scale (dBA) to correspond to the range of normal human hearing. The day-night noise level metric, Ldn, is the dBA level averaged over a 24-hour day or one month. The Ldn is a preferred unit for quantifying human response to environmental noise, and is accepted by the DOD, Department of Housing and Urban Development (HUD), Department of Transportation (DOT), Federal Aviation Administration (FAA), EPA, and the Veterans' Administration (VA).

In calculating the Ldn value, a 10-dB penalty is added to noise events occurring between 10 p.m. and 7 a.m. because noise at night is judged to be more annoying than noise during the day. Since the Ldn values are averages, a single noise event, such as a low-altitude overflight, will actually be much louder than the average noise level would indicate. The single noise event measurement is called the sound exposure level (SEL). This measure takes into account the effect of both the duration and magnitude to a noise event such as an aircraft flyover. SEL is measured in dBA. SEL measurements for SAC aircraft at varying altitudes are presented in Table 1.1. Typical sound levels found in the environment are presented in Table 1.2. More complete descriptions of noise measurements can be found in Aviation Noise Effects (Newman and Beattie 1985) and in Environmental Protection Planning in the Noise Environment AFM 19-10.

Table 1.1: SAC Aircraft SEL Noise Levels

Distance (Feet)	B-1B	B-52	FB-11
200	123 dBA	123 dBA	115 dBA
400	117 dBA	118 dBA	110 dBA
500	115 dBA	117 dBA	108 dBA
1000	109 dBA	111 dBA	102 dBA
2000	102 dBA	105 dBA	96 dBA
5000	92 dBA	95 dBA	85 dBA
10000	82 dBA	86 dBA	76 dBA
16000	75 dBA	79 dBA	68 dBA
20000	72 dBA	75 dBA	64 dBA
25000	68 dBA	72 dBA	[illegible] dBA

* B-1B flight conditions: 632 mph, 98% thrust
* B-52 flight conditions: 390 mph, 2.0 EPR
* FB-111 flight conditions: 517 mph, 95% thrust

Source: ROUTEMAP Database, 1988.

Table 1.2: Typical Noise Levels in Selected Environments

Type of Environment	Noise Level (dBA)	Noise Source
	--160--	Spontaneous Blast
	--150--	
War	--140--	Civil Defense Siren (100 Feet)
	--130--	Skill Hammer
Pain Threshold		
Jet Airport/Discotheque	--120--	Train Whistle/Chain Saw
	--110--	Bench Grinder
	--100--	Lawnmower/Air Compressor
	--090--	Diesel Truck (25 ft)
Noisy Urban/Construction	--080--	Alarm Clock
Freeway	--070--	Sewing Machine/Vacuum Cleaner
Annoyance		
	--060--	Conversation/Air Conditioner
Noisy Urban Residential	--050--	Washing Machine
Residential, Light Traffic	--040--	Refrigerator
Farm	--030--	Whisper/Crickets

Source: Draft SAC Public Information Brochure, 1989

An Ldn of 55 dB is recognized by the HUD, DOT, and EPA as an outdoor goal for protecting public health and welfare in residential areas. This noise level has been established by scientific consensus without concern for economic or technological considerations, and is not a regulatory criterion. In general, an Ldn value of 65 dB is the noise level at which residential land use compatibility becomes questionable for structures with average or below average acoustic insulation. (Some residential areas are considered to be compatible with noise levels exceeding 75 dB if sufficient acoustic attenuation is provided.) The HUD has determined that levels between 65 and 75 dB are "normally unacceptable" for sensitive uses such as hospitals and schools, unless attenuation measures are incorporated into the project design. Levels above 75 dB are considered unacceptable by the HUD for noise sensitive areas. Under laboratory conditions, humans perceive a doubling of loudness for every 10-dB increase in sound level. Slight changes in loudness are difficult to detect because the human auditory system has difficulty registering even a 2-dB change unless the two noise events occur within seconds. Under most conditions, a 5-dB change is required before the change is noticeable (EPA 1973).

2.0 Noise Effects on Humans

The impacts of aircraft noise upon human health were summarized in an EIS prepared by the Air Force regarding the proposed beddown of F 15E aircraft at Seymour Johnson AFB, North Carolina [USAF 1988e]. The following discussion is excerpted from this EIS.)

The effect of noise on human health can generally be divided into three categories: physiological, behavioral, and subjective. The primary physiological concern with noise is hearing loss. Other physiological concerns have been included as nonauditory effects.

2.1 Physiological Effects

2.1.1 Hearing Loss

Considerable amounts of data on hearing loss have been collected and analyzed. It has been well established that continuous exposure to high noise levels will damage human hearing (EPA 1978). People normally are capable of hearing up to 120 dB over a frequency range of about nine octaves. Hearing loss is generally interpreted as the shifting to a higher sound level of the ear's sensitivity or acuity to perceive sound. This change can either be temporary (TTS temporary threshold shift) or permanent (PTS permanent threshold shift) (Newman and Beattie 1985).

Regular exposure to A-weighted sound levels of from 60 to 80 dB for periods of 8 hours will cause some TTS in a significant proportion of the population exposed (Science Applications, Inc. 1980). EPA has set 75 dBA for an 8-hour exposure and 70 dBA for a 24-hour exposure as the average noise level standard requisite to protect 96 percent of the population from greater than a 5-dB PTS (EPA, 1980). While these standards have relevancy for planning, they in themselves are not necessarily appropriate land use planning criteria for controlling noise sources because they do not consider cost, feasibility, or the development needs of the community. The results of the three known studies, two of which exposed individuals to a maximum level of 111 dBA over 6-hour periods at a flyover rate of 40 events per hour, on community hearing loss from exposure to aircraft flyovers near airports showed that there is no danger (under normal circumstances) of hearing loss due to aircraft noise (Newman and Beattie 1985).

2.1.2 Nonauditory Effects

Studies have been produced to determine whether correlations exist between noise exposure and cardiovascular problems, achievement scores, birth weight, mortality rates, and psychiatric admissions. The nonauditory effect of noise on humans is not as easily proven as the effect on hearing. The results of studies done in the United States primarily concentrating on cardiovascular response to noise have been contradictory (USAF 1985a).

Cantrell (1976) concluded that the results of human and animal experiments show that average or intrusive noise can act as a stress-provoking stimulus. Prolonged stress is known to be a contributor to a number of health disorders. Kryter (1980) states, "It is more likely that noise-related general ill-health effects are due to the psychological annoyance from the noise interfering with normal everyday behavior, than it is from the noise eliciting, because of its intensity, reflexive response in the autonomic or other physiological systems of the body. The psychological stresses may cause a physiological stress reaction that could result in impaired health."

The National Institute for Occupational Safety and Health and EPA commissioned the Committee on Hearing, Bioacoustics, and Biomechanics (CHABA) to study the question of whether established noise standards were adequate to protect against health disorders other than hearing defects. CHABA's conclusion was that "evidence from available research reports is suggestive, but it does not provide definitive answers to the question of health effects, other than to the auditory system, of long-term exposure to noise. It seems prudent, therefore, in the absence of adequate knowledge as to whether or not noise can produce effects upon health other than damage to the auditory system, either

directly or mediated through stress, that insofar as feasible, an attempt should be made to obtain more critical evidence." CHABA also reported that "many of the available foreign studies could be criticized on a methodological basis (studies were not adequately controlled for other known risk factors)." Additionally, Dr. Shirley Thompson of the University of South Carolina School of Public Health summarized her research team's "evaluation of the epidemiologic evidence available regarding the effects of noise on the cardiovascular system" in a paper given at the May 1983 meeting of the Acoustical Society of America (a summary of EPA reports having NTIS designations PB 82-147752, PB 82-147760, and PB 82-147778). Of some 800 potential publications, 83 were chosen for critical review. Each selected article was critiqued independently by an epidemiologist, a cardiologist, and an audiologist. Individual critiques were then integrated for study summary. The conclusion derived by the reviewers plus an additional set of consultants was that "our analysis indicated that studies to date are inadequate for establishing a cause-effect relationship between noise and cardiovascular research." In terms of adequacy of current research, Thompson summarized the results of the evaluation process as follows:

The relatively poor quality of the identified papers is reflected in the individual component and overall ratings of the reviewers. The proportions of studies meeting more than 50 percent of the evaluative criteria were as follows: On the noise component, 6 percent of the English literature and 11 percent of the translated research; on the health outcome component, 33 percent of the English and 32 percent of the translated research; and on the epidemiologic methodology component, 42 percent of the English literature and 11 percent of the translated studies. When the lowest of the three component scores is taken as the overall validity score, no study reported in the English literature and only one in the translated literature was rated higher than "4" on the 0 to 9 scale. These ratings indicate that the literature is less than fully informative for the task of judging the association between noise and cardiovascular effects. These reports by Thompson represent a milestone in noise research and hopefully a precedent has been set for future evaluations of research in this area.

2.1.3 Behavioral Effects

Behavioral effects associated with excessive noise levels include speech and sleep interference and performance loss.

2.1.3.1 Speech Interference

One of the most obvious effects of aircraft noise intrusion is speech interference. The disruption of leisure activities such as listening to the radio, television, music, and conversation is a primary source of annoyance, giving rise to frustration and

irritation. In some situations, a high degree of intelligibility is essential to safety.

The frequency spectrum of speech covers the range from 100 to 6,000 Hz. The intensity level variation of successive sounds is equal to 30 dB. Speech is an acoustic signal characterized by rapid fluctuations in sound level and frequency pattern. It is essential for optimum speech intelligibility to recognize these continually shifting sound patterns. Not only does noise diminish the ability to perceive the auditory signal, but it also reduces a listener's ability to follow the pattern of signal fluctuation.

The EPA (1978) has identified the Ldn level of 55 dB as the maximum permissible daily level of intruding noise to allow satisfactory speech communication. It is recognized that single-event maximum levels, such as aircraft flyovers, can cause momentary speech communication interruption.

2.1.3.2 Sleep Interference

Sleep is not a continuous, uniform condition but a complex series of states through which the brain progresses in a cyclical pattern. There are basically five stages of sleep. Arousal from sleep is a function of a number of factors that include (1) age, (2) sex, (3) sleep stage, (4) noise level, (5) frequency of noise occurrences, (6) noise quality, and (7) presleep activity. Since there are extreme differences in the physiology, behavior, habitation, and adaptation to noise of individuals, few studies have attempted to establish noise criterion levels for sleep disturbance.

Some conclusions on the major determinants of human sleep response to noise drawn by Lukas (1972) include:

1. Children 5 to 8 years of age are generally unaffected by noise during sleep.

2. Older people are more sensitive to sleep disturbance than younger people.

3. Women are more sensitive to noise than men.

4. Within their own age group, there is a wide variation in the sensitivity of individuals to noise.

5. Sleep arousal is directly proportional to the sound intensity of aircraft flyover.

While there have been several investigations done to assess the effect of aircraft noise on sleep, none have produced quantitative dose-response relationships in terms of noise

exposure level, Ldn, and sleep disturbance. Noise-sleep disturbance relationships have been developed based on single-event noise exposure.

The threshold level of noise that can cause sleep arousal ranges from 35 to 70 dBA. Studies show that sleep interference can take place without a person being consciously awakened. The EPA has set 35 dBA as the disturbance level for steady noise and concludes that a single event level of 40 dBA can result in a 5-percent probability of awakening (Newman and Beattie 1985).

The FAA (1985) has concluded from its research that "the psychological annoyance from the effects of sleep interference due to aircraft noise is probably more significant than the direct physiological consequences" (Newman and Beattie 1985). The effects of noise on sleep are not completely understood. There have been few studies done on the short- and long-term after-effects such as psychological and physiological disorders or task performance degradation during periods following sleep disturbance.

2.1.3.3 Performance Effects

The effect of noise on the performance of activities or tasks has been the subject of many studies. Some of these studies have established links between continuous high noise levels and performance loss. Noise-induced performance losses are most frequently reported in those studies employing noise levels in excess of 85 dBA. Little change has been found in low-noise cases. It has been cited that moderate noise levels, 84 dBA, appear to act as a stressor for more sensitive individuals performing a difficult psychomotor task.

The general effect of noise on performance is just beginning to be suggested from research studies. The results have yet to yield definitive criteria with respect to the effect of periodic aircraft noise on performance. Several general trends that have developed are:

A periodic intermittent noise is more likely to disrupt performance than steady-state continuous noise of the same level. Flyover noise, due to its intermittent nature, might be more likely to disrupt performance than a steady-state noise of equal level.

Noise is more inclined to affect the quality than the quantity of work.

Noise is more likely to impair the performance of tasks that place extreme demands on the worker.

2.2 Subjective Effects

Annoyance is the primary consequence of aircraft noise. The subjective impression of noise and the disturbance of activities are believed to contribute significantly to the general annoyance response. The feeling of annoyance is a complex response and when considered on an individual basis displays a wide availability for a given noise level. Research studies have found greater correlation by examining aggregate community annoyance to noise (Newman and Beattie 1985).

A number of nonacoustic factors have been identified that may influence the annoyance response of an individual. Newman and Beattie (1985) divided these factors into emotional and physical variables:

Emotional Variables

Feelings about the necessity or preventability of the noise.

Judgment of the importance and value of the activity that is producing the noise.

Activity at the time an individual hears the noise.
Attitude about the environment.

General sensitivity to noise.

Belief about the effect of noise on health.

Feeling of fear associated with the noise.

Physical Variables

Type of neighborhood.

Time of day.

Season.

Predictability of noise.

Control over the noise source.

Length of time an individual is exposed to a noise.

Most of the existing measures of community response to aircraft noise are based on the premise that the degree of annoyance experienced by a community as a whole can be adequately predicted by acoustic models. It has been found that in any community there will be a given percentage of the population highly annoyed, a given percentage mildly annoyed, and some who will not

be annoyed at all (Newman and Beattie 1985). "The underlying assumption is that noise-exposed populations will experience similar reactions of annoyance when exposed to equivalent levels of noise" (EPA, 1980).

Appendix G: Definition of Annoyance

Definition of Annoyance

Public attitudes toward low-level training flights, in part, represent concerns about potential impacts from those flights on the human environment. The primary issues identified through public meetings include startle effects, damage to structures, interference with Native American religious ceremonies, scaring livestock and wildlife, and unfairness to people residing in rural areas (ORNL, 1988). Few scientific studies, however, have been conducted to address these issues. Most studies have focused on the response of people living near airports to aircraft, and are of limited applicability in assessing the effects of low-altitude training flights. Five categories of potential public impact were used in a recent literature review of the subject (ORNL, 1988): annoyance, interference with behavior or activities, mental health (e.g., emotional effects and safety concerns), economics, and physical health. These impacts can occur at the individual or community level.

Essentially, the problem in the low-level route context is one of intermittent, intrusive events (noise and visual presence of military aircraft). Overflights occur at frequently unpredictable times, in locations that may vary from overhead to one or more miles to either side of the receptor, and at altitudes that seem very low. The rapid speeds of the aircraft result in a sudden onset of the intrusive event.

The most common human response to annoyance is to complain, and several sensitive noise receptors along the routes have been identified as a result of such complaints. These receptors are presently avoided whenever possible by increasing flight altitude or by lateral avoidance. Interference with sleep and speech are the primary impacts on behavior. Due to the low frequency of flights, short duration of the associated noise (at any one point along the route), predominance of daytime flights, and low population density along the routes, impacts on behavior are currently negligible. The most important psychological effect is concern about safety. The public risk from a military aircraft crash is extremely low, particularly in the sparsely settled areas low-level military flight operations commonly overfly. Noise can also aggravate existing mental health problems, cause property damage and decrease real estate values (economic impacts), and potentially affect physical health (ORNL, 1988).

In an effort to understand what impacts low-level military flight operations have on people living beneath them, the Strategic Air Command (SAC) funded exploratory research by Oak Ridge National Laboratory. The research was designed to obtain data on noise levels gener- ated by SAC bomber aircraft when they operate at low altitudes and to interview people regarding their perceptions of these flights. Initial data collecting occurred in southeastern Colorado in late 1985. This area was selected for

the study because of the representative nature of both the SAC flight activity and the socioeconomic environment of the area.

Further research is needed before conclusions can be drawn about the responses to the flying program, however, based on the initial data collected, certain tentative findings are presented. Many of the people overflown operate noisy farm equipment or live near grain elevators and are therefore acclimated to high noise levels. However sudden loud noise, such as that produced by low-level flights, can be disturbing, as least momentarily. Most people were aware of the SAC flights and non-SAC flights in the area but the level of awareness varies greatly. As yet no correlation between the level of awareness and acceptance or the distance from the flights and acceptance is known. These areas are currently being researched.

Most people interviewed agreed with the need for the flights but not necessarily with the need to fly in their area. A minority of the persons interviewed were enthusiastic and cited feeling of "patriotism" or "entertainment" value (i.e., they enjoyed watching the aircraft or the flights broke up the routine nature of their day) as their reasons. Most of the people remained passive or were not entirely happy with the flights. The people who were passive regarding the flights stated they had grown used to them. This contradicts studies of airport noise that indicated that people became more annoyed rather than acclimated to flights with time. Most of the people who stated they were not entirely happy with the flights voiced concern over the noise levels and/or the "low" nature of the flights. Even with these reservations, however, they tended to accept the flights as being necessary.

The Air Force has developed two annoyance modeling computer programs based on its Noisemap and Routemap Models for predicting noise exposure resulting from airport and low-level military route flight operations, respectively. The programs predict the percentage of the population affected by increased noise levels likely to be highly annoyed by the flight operations. The calculations are based on the Ldn noise level metric (see Appendix F) and use the formula listed at Figure 1. In the case of the Noisemap model the dBA is averaged over a 24 hour period. In the case of Routemap the dBA is averaged over a 30 day period. Both systems are nationally accepted and approved by the Committee on Hearing, Bioacoustics and Biomechanics (CHABA).

Figure 1: Annoyance Formula

$$P = \frac{1 + E}{(1 + E)^{10.43} - .132(LDN)}$$

P = Percentage of people highly annoyed
E = Exposure
LDN = LDN level for route/airport flight activity

Appendix H: Economic Impact Forecast

TRAINING

Project name: MIGHTY FORCE 89

Enter d to enter your own price deflators
RETURN to use the default price deflators (latest year:)

Default price deflators:

baseline year	(CPI - 1982)	= 100.0
local services and supplies	(PPI - 1988)	= 106.9
output and incomes	(CPI - 1988)	= 117.9

(Enter decreases as negative numbers)
If entering total expenditures, enter 1
local expenditures, enter 2 : 1
Change in expenditures for services and supplies: 23,000
Change in expenditures for local services and supplies: [illegible] calculated
Number of (non-basic) trainees: 157
Average income of trainees: 22.99
Percent of trainees living on-post: 100

********** TRAINING IMPACT FORECAST FOR MIGHTY FORCE 89 **********

Export income multiplier:		2.0244	
Change in local			
Sales volume	Direct:	26,000	
	Induced:	$26,000	
	Total:	$52,000	(0.005%)
Employment	Direct:	0	
	Total:	437	(1.803%)
Income	Direct:	$2,000	
	Total (place of work):	$46,000	
	Total (place of residence):	$133,000	(0.022%)
Local population		1,008	(2.030%)
Local off-base population		0	
Number of school children		0	
Demand for housing	Rental:	0	
	Owner occupied:	0	
Government expenditures.....		$0	
Government revenues		$8,000	
Net Government revenues		$7,000	
Civilian employees expected to relocate:		0	
Military employees expected to relocate:		437	

... type RETURN to continue ...

Type:	To:
f	print your input values and output to a file
i	see your input values
o	see your output again
m	return to Forecast Models menu
q	return to EIFS

!

Economic Impact Calculations

The projected economic impact inputs are based on a $25,000 per month lease of facilities which is assumed to include all coincidental costs (i.e. minor repairs and construction). Projects of increased revenues associated with personnel moves are based on the following assumptions: 1) personnel deployed would be as per the standard 8AF deployment package provided by 8AF/LGX, 2) ranks of personnel, to include time in grade are those typical of the AIr Force as a whole, 3) each member would have available 10% of his/her base pay (computed for the duration of that members TDY) plus any flight pay (rated) they might be paid for the duration of the deployment, 4) basic food and quarters allowances would not be spent during the deployment - they would be left at home base to cover expenses there, and 5) flight crews would be TDY two weeks and the ground personnel would be TDY three weeks, 6) Per diem would not be paid - food/ quarters would be provided.

Non Rated

Rank/Yrs	Base Pay x .75 x 10 =	Persons in Grade		
04/14	3102.00	232.65	x 2	= 465.30
03/10	2676.30	200.72	x 9	1806.48
E8/18	1999.20	149.94	x	404.82
E6/14	1510.50	113.29	÷ 2 = 104.37 x 63	= 6574.31
E5/10	1272.60	95.45		
E-4/4	104.30	75.00	x 276	18431.40

Total Rated pay } 27,726.5

(R)ated

Rank/Yrs	Basic/Flt Pay × .5 (2 wks) × .10 =	× Person in Grade	=
05/18	3732 + 400 × .75 (Det.CO)* 309.90	× 2	619.8
04/14	3122.00 + 400 262.65	× 16	4202.40
03/10	2676.30 + 400 230.72	× 66	15227.
02/6	2135.40 + 400 190.15	× 4	760.60
E6/14	1510.50 + 200 128.29 } ÷ 2 112.62	× 1	112.62
E5/10	1272.60 + 200 96.95		
E4/4	1041.30 + 200 73.10	× 23	2141.25

23064 3-
+ 27.7-6
50,792.8
÷ 4..
$116.23

116.23 per person
[illegible]
less X [illegible] 492.90

* Senior officers present 2 wks
not [illegible] rated 2 wks

Flt pay = officer [illegible], Enlisted minimum

Appendix I: Contact Reports

DATE OF CONTACT: March 13, 1989

METHOD OF CONTACT: Telephone

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Mr Fowler
Title: Range Management Specialist
Address: State Extension Services
New Mexico State University
Las Cruces, New Mexico 88003

Telephone: (505) 646-1944

Discussion: Mr Fowler of the New Mexico Extension Service (NMSU/Las Cruces) telephoned to acknowledge receipt of my scoping letter of 2 Mar 89. He is preparing a written response but phoned to give me a heads up. He stated that shearing of sheep occurs in the immediate area of the air park throughout March of each year. That is not a concern, he stated. However, lambing occurs in the same area during the first two weeks of April - that is of concern. In addition, the area within five mile radius east of Roswell is the home of 10,000 dairy cattle. These cattle are not kept on the open range and hay is shipped in. The cows produce milk and calve year round. The extension service is concerned that flights might impact milk production if the flight patterns overlie the dairy "barns". He stated he felt there would be no impacts to the range area.

DATE OF CONTACT: March 14, 1989

METHOD OF CONTACT: Telephone

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Mr Fowler
Title: Range Management Specialist
Address: State Extension Services
New Mexico State University
Las Cruces, New Mexico 88003
Telephone: (505) 647-1944

Discussion: Mr Fowler of NMSU (Las Cruces) returned my call and stated that the dairy cattle operations I needed information about were located SE of the air park along HWYs 285 and alternate 285 about 5 miles south east of the air park. He confirmed the location of the dairy operation Mr Rickowski identified as being about 1.5 to 2 miles east of the center of Roswell.

DATE OF CONTACT: March 14, 1989

METHOD OF CONTACT: Telephone

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Mr Rickowski
Title: District Manager
Address: Bureau of Land Management
Roswell, New Mexico

Telephone:

Discussion: Mr Rickowski called to give heads up regarding their comments. He anticipates no impact to the BLM rangelands. He also gave information regarding the area dairy operations. He said the cattle spend some time in feedlots and the rest in cattle "barns". One of the operations is located east of Roswell, beginning about 1.5 miles out, as measured from intersection of Hwy 380/70.

DATE OF CONTACT: March 16, 1989

METHOD OF CONTACT: Telephone

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Lt Col Barna
Title: Assistant Deputy Commander
for Operations
Address: 8AF/ADO
Barksdale AFB Louisiana 71110

Telephone: AV 781-3871

Discussion: This meeting was called to discuss the proposed deployment of 8AF B-52G (and some B-52H) to Roswell IAP, Roswell N.M. LtCol Barna made the following points in response to my questions:

a. A standard earthern berm would be constructed on a site opposite Bldg 1770. The berm would be equipped with four one inch pipe drains, on at each cornerand would be lined with 6 mil 40X100 feet polyurethane. The site would be used for three 1000,000 gallon fuel bladders. The bladders consist of 1/4 inch thick, rubber impregnated fabric and would be refueled by truck. Fuels contract would be handled through Defense Fuel Agency.

b. No additional construction is proposed. Repairs to the leased buildings would consist of repairing Bldg 1176's leaking roof, painting of all buildings except Bldg 1770, repairs to Bldg 1770's plumbing and electrical systems (probably by 8AF/CE teams), and landscaping/yard clean-up of Bldg 1166.

c. Safety issues regarding Bldg 1116 (Ammo Storage Bunker) are being addressed by 8AF. The building dimensions/construction are not known but it is a standard steel-doored Air Force ammo bunker.

d. Munitions to be stored include Mk 82 and possibly Mk 117R.

e. The Alert Area (Bldg 1116) will be used for billeting. It has water and Fire Hydrants. Bldg 1770 will be used for maintenance/operations. Bldg 1776 will be used as a garage. All buildings, except Bldg 1116, have all utilities hooked up, we only have to turn them on. Bldg 116 requires minor repairs and then utilities can be turned on.

f. Total leasing costs for single deployment would be $22,000.

DATE OF CONTACT: March 31, 1989

METHOD OF CONTACT: Telephone

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Dot Miller
Title: HQ AFESC/DEVP
Address: Tyndall AFB, Florida 32403

Telephone: AV 523-6353

Discussion: I talked to Dot regarding the noise contour I requested for Roswell Industrial Air Park. I wanted additional guidance regarding at what radius from the air park I need to inventory sites sensitive to noise. She stated that the twenty miles out from the end the runway and five miles to either side standard I was considering was more than adequate. She further recommended that I mark the sites I wanted highlighted on the noise model on a chart and forward it to her. She would then use the data in her calculations.

DATE OF CONTACT: April 04, 1989

METHOD OF CONTACT: Telephone

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Howard Holland
Title: Chief, Engineering & Services
Address: 8AF/DE
Barksdale AFB Louisiana 71110

Telephone: AV 781-3866

Discussion: I called Mr Holland to inquire about details of the proposed deployment to Roswell Industrial Air Park Mr Holland stated that vehicles planned for the deployment include 2 P-4 firetrucks, 6 pick-ups, 1 flatbed and 1 rented dumptruck and 1 rented payloader. He further stated that 8AF does not have any estimate of the deployment's water or power consumption or waste generation.

DATE OF CONTACT: April 04, 1989

METHOD OF CONTACT: Telephone

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Lt Col Barna
Title: Assistant Deputy Commander
for Operations
Address: 8AF/ADO
Barksdale AFB Louisiana 71110

Telephone: AV 781-3871

Discussion: I called LtCol Barna to inquire about the engine run-ups planned for the Roswell deployments. He confirmed that 3.5 per week are planned and added that the ratio would be 2.5 to 1, with participating aircraft being B-52 and KC-135. They would be performed on the proposed SAC parking apron.

DATE OF CONTACT: April 05, 1989

METHOD OF CONTACT: Personal Conversation

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Major Joseph Brewjo
Title: Air Operations Officer

Address: HQ SAC/DONO
Offutt AFB, Nebraska 68113-5001

Telephone: AV 271-3450

Discussion: Topic of discussion was SAC flight operations, especially those in the vicinity of an airfield and transit flights between airfields and low-level routes. Major Brewjo stated that, given the distance between Roswell IAP and the low-level routes (IR-26) that access the TFWC Range Complex, B-52 and KC-35 aircraft could be expected to climb to altitudes of 10,000 feet AGL or higher when transiting between the routes and the airfield. In area where the aircraft would cross MOA or range airspace, they would be diverted around the special use airspace by FAA controllers if the SUA was active. If inactive, they would transit the SUA. Aircraft taking off from an airfield, to include Roswell IAP, would normally achieve altitudes of 3000 feet AGL within ten miles of the runway unless directed otherwise by FAA controllers. When landing they would remain above 3000 feet AGL until within 10 miles of the runway. These figures might change, under special circumstances but can be considered the norm.

DATE OF CONTACT: April 05, 1989

METHOD OF CONTACT: Telephone

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Mr George Swenson
Title: Air Traffic Controller
Address: Federal Aviation Administration
Roswell Industrial Air Park
Roswell, New Mexico
Telephone:

Discussion: Mr Swenson provided the following additional information regarding flight operations at the air park. There are 6567 tower operations and 2225 IFR operations. They are broken down as listed below.

Total Landings/Take-offs	3521
General Aviation	1911
Military	742
Air Transport	868
Total Touch & Go	4513
Civil	1444
Military	3069
Misc Tower Ops	758

The percentages for LTOs are the same as for TGOs as regards military aircraft. Military TGOs percentages are as follows: T-38 -70% and 5% each for F-15, T-37, F-111, F-100, F-106 and misc. General aviation operations are primarily light aircraft such as Cessna, Beechcraft, Gulfstream etc. Specifics for air transport operations are not available but they consist of jet and propellor aircraft to include 2xC-5, 8x747/DC-10 a month and approximately 80 Boeing 727/737 a month. Civil aircraft TGOs are virtually all light aircraft except for approximately 30 Lufthansa B-747/DC-10 and a similar number of NASA TGOs with B747.

DATE OF CONTACT: April 13, 1989

METHOD OF CONTACT: Telephone

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Mr Andrew Sandoval
Title:
Address: Department of Fish & Game
Villagra Building
Santa Fe, New Mexico 87503
Telephone: (505) 827-7952

Discussion: I requested additional information regarding animal and plant populations in the five county ROI identified as the area of study for the Roswell FOB EA. Mr Sandoval was of the opinion that no state or federally listed species inhabited the Roswell IAP. I stated that was also my impression but SAC was continuing to scope with Roswell authorities, to include the local NWR manager, in order to get a definitive answer. Mr Sandoval agreed to forward a copy of the state listed threatened/endangered species for the five county area.

DATE OF CONTACT: April 13, 1989

METHOD OF CONTACT: Personal Communication

ORIGINATOR: Mary Peters

PERSON CONTACTED: Mike Bell
Title: Area Game Manager
Address: New Mexico Dept. of Game & Fish
1912 West 2nd Str.
Roswell, New Mexico 88201
Telephone: (505) 624-6135

Discussion: Raymond Reeves, Officer was also present. Discussed game populations in Chaves County. There are no white-tailed deer in the county. There ae large year round antelope herds and the area has much prime range including areas adjacent to RIAP. The antelope are acclimated to aircraft noise due to high level of existing flights and the proposed flights should not be a problem. There is a large turkey vulture population north of town in the area of pecan orchards. The state protected [illegible]rking frog and horned toad inhabit the plains area to include the air park. No impacts to these species is anticipated, they are effected only by destruction of critical habitat and physical destruction of animals. The proposed action involves neither. The Hondo River valley is occasional home wintering bald eagles. Concentrations of migratory waterfowl occur along the river south of the town.

DATE OF CONTACT: April 13, 1989

METHOD OF CONTACT: Personal Communication

ORIGINATOR: Mary Peters

PERSON CONTACTED: Lee Marlatt
Title: Refuge Manager
Address: Bitter Lakes NWR
Roswell, New Mexico 88201
Telephone: (505) 622-6755

Discussion: Also present were Danny Gomez, Assistant Refuge Manager, Betsy Rosenbaum, Outdoor Recreation Planner. Discusssed impacts of increase noise levels and the status of the MWR. Discussion took place during a tour of the refuge. The consensus was that the proposed flights would have no impact beyond that already experienced under current flights.

A new addition to the refuge, located south of Hwy 380 and just south of the old boundary has been added. Annual visitation is approximately 35,000 per year. The new aquisition totals 24,900 acres. The NWR refuge has vehicular and horseback traffic. The refuge's migratory population of sandhill cranes moveout before sunrise to feed in the alfalfa fields to the south and along the Pecos River and Rio Hondo (pecan orchards and cropland)

DATE OF CONTACT: April 13, 1989

METHOD OF CONTACT: Personal Communication

ORIGINATOR: Mary Peters

PERSON CONTACTED: Loney Ashcroft
Title: District Conservationist
Address: Soil Conservation Service
1011 South Atchison
Roswell, New Mexico 88201
Telephone: (505) 622-8746

Discussion: Also present was Malcom McCarthy, of USDA/ASSC. Discussed was the location of dairy and beef cattle operations in the area. A map was provided listing the locations of various operations in the area. Consensus was that no additional or new impacts to these operations would result from proposed action.

DATE OF CONTACT: April 13, 1989

METHOD OF CONTACT: Personal Communication

ORIGINATOR: Mary Peters

PERSON CONTACTED: Bill Brainard Pope
Title: Mayor
Address: City of Roswell
Roswell, New Mexico 88201
Telephone: (505) 622-6700

Discussion: Also present was Roger L. Cooper, P.E. Director of Public Works, John E. Capps, City Attorney & Asst. City Manager. Mark Sawyers, Planner, I Siri Cooper, Director of Support Services and from Southwestern Public Service CO, Bill Pope, Division Manager, John Fitzpatrick, Supervising Engineer and Dennis Ybarra, Air Center Manager, LtCol Barna of 8AF/DO and others who did not comment on this issue. The meeting was held at the air park.

Discussed was details of electric service to Roswell Industrial Air Park. The company provides service to a central meter at the air park and the city them meters individual buildings. There is a 69Kv line from the rehac station and the RIAP is serviced by 12.5 Kv lines. The line into Bldg 1166 is no longer in service and must be replaced with an above ground line at a estimated cost of $5000-$6000 (per city engineer). The electric lines to Bldgs 1770 & 1776 run underground along the runways and taxiways. Concern was expressed by City Engineer that construction activities in those areas might disturb the lines..

Also discussed at this meeting were transportation and waste disposal problems. Col Barna estimated 60 vehicles a day would move through the area as a result of the deployment. Included would be flatbed and fuel trucks coming from Holloman AFB, Alamagordo. Mr Ybarra suggested that the peak hours for traffic being 6AM and 2:30-3PM at the air park and the average daily traffic flow at the main gate was 9000 vehicles. He felt that the fuel trucks shoulduse the west rather than main gate and should use secondary rather than main streets and be scheduled for off-peak hours. Regarding solid waste disposal, Mr Ybarra noted that city trucks do not service the airfield and the city engineer added that waste disposal would have to contracted out to Waste Control of New Mexico Inc who would transport it to the city landfill where there was adequate capacity. The city engineer added the following regarding water. The air park is served by a 500,000 gallon elevated reservior which is fed by three wells the depth of which is 500 to 800 feet. The reservior is also filled by the municipal well field located west of the city and the well field goes down to 200 feet. Six inch water

lines feed to one inch lines serving Bldgs 1770 & 1776 - these lines are currently serviced. The one line into Bldg 1166 is not serviced. Liquid waste would be handled by the same firm who handles solid waste, with the exception of human excrement which would be handled by the building's septic systems as lon as their capacity was not exceeded. After than point, Waste Management of New Mexico would have to be engaged. The engineer felt the city could easily handle the demand on water supplies from the deployment. He also suggested that water lines be flagged if the fuel berm was to be constructed near them.

DATE OF CONTACT: April 13, 1989

METHOD OF CONTACT: Personal Communication

ORIGINATOR: Mary Peters

PERSON CONTACTED: Rebecca Whisner Ehler
Title: Chaves County Planner
Address: P.O. Box 5759
Roswell, New Mexico 88201
Telephone: (505) 624-6602

Discussion: Discussion involved zoning in the area of RIAP. A zoning map was provided. Land use within the air park is as follows: industrial surrounding the air strip; public surrounding university; park and open space surrounding entrance road; low density housing in old base housing area (5 buildings an acre); rural suburban in the overflight protection zone. Land use outside the RIAP (keyed to map): Ldn 4= agriculture, open space, no structures; Ldn 2-3= one dwelling per 5 acres; Ldn 1 (RS)= one dwelling per five acres due to ground water; DSB overlay zone= one dwelling per 10 acres. There is a two mile zone around the air park which is under city/county jurisdiction -it is called the extraterritorial zone. The Ldn zones were established by the FAA ten years ago.

DATE OF CONTACT: April 13, 1989

METHOD OF CONTACT: Personal Communication

ORIGINATOR: Mary Peters

PERSON CONTACTED: Mr Loyd Hatch
Title: Area Manager
Gas Company of New Mexico
Address: P.O. Box 190
Roswell, New Mexico 88201
Telephone: (505) 623-1840

Discussion: Mr Hatch provided details of the gas company operation at the air park. He stated the company provides service to a central meter at the air park, at which point the city takes over. Service to individual buildings consists of 2-3 inch lines buried 2-2.5 feet below ground. Buildings 1770 and 1776 peak winter usage is 2.4 mcf/hr. Each deployment would use an estimated 1000 mcf.

DATE OF CONTACT: April 13, 1989

METHOD OF CONTACT: Personal Communication

ORIGINATOR: Mary Peters

PERSON CONTACTED: Siri K. Cooper
Title: Director, Support Services
Address: PO Drawer 1838
Roswell, New Mexico 88201
Telephone: (505) 624-6700

Discussion: According to Mr Cooper, a Mr Dye completed a study five years ago of the area from RIAP to the Pecos River to determine the level of concentrations of nitrates and other chemicals in the area. The area is used for dairy cattle operations. As a result of the findings, the ground water supply is regulated and no new withdrawal permits will be issued and new construction is limited due to ground water supply.

DATE OF CONTACT: April 19, 1989

METHOD OF CONTACT: Personal Communication

ORIGINATOR: John Mastrianni

PERSON CONTACTED: LtCol Barna
Title: Asst Director Operations
Address: 8AF/ADO
Barksdale AFB LA 71110
Telephone: AV 781-3871

Discussion: Discussed changes in 8AF operations plan. Due to concern voiced at a meeting between LtCol Barna and Mr Dennis Ybarra et al at Roswell IAP on 13 April 1989 the following changes have been made. The SAC aircraft parking apron will be moved to parking aprons east of Taxiway C and adjacent to the end of Runway 12/30. This frees the runway for light aircraft and take-offs currently performed by Mesa Airlines. It would have been blocked under the original plan and SAC would have been required to perform/finance repairs to abandoned Runway 1438, so it could be used as an emergency landing field. Under the new aircraft parking arrangement, the alternate runway is no longer required. The fuel berm site would be moved to a site between the new parking apron and Runway 21/03. This frees Taxiway C which would have had to be closed to accomodate truck/personnel traffic between the original fuel site and the maintenance building. If Taxiway C had been closed aircraft would have been diverted 1.5 to 2 miles.

DATE OF CONTACT: April 19, 1989

METHOD OF CONTACT: Personal Communication

ORIGINATOR: Mary Peters

PERSON CONTACTED: Capt Post
Title: Engineer
Address: 8AF/DE
Barksdale AFB LA 71110
Telephone: AV 781-3866

Discussion: Discussed the placement of the proposed fuel berm sites. Discussion took place during a walking tour of Roswell IAP. It was decided that the optimum fuel berm site was between Runway 03/21 and the parallel taxiway opposite the new SAC parking apron. The slope and soils appeared more favorable. Soil for the berm would be drawn from both on IAP and off IAP sites, no escavating would take place and construction would be IAW TO 37A12-15-1. Included as part of the construction would be one inch drains, located at each corner of the berm and a 6 mil polyurethane 40X100 feet sheets liner. If fuel were to be spilled, defuel trucks would be used to recover the spillage. Specifically no visual obstruction of runways/taxiways would occur, soil in amounts equal to 1.5 times the volume of fuel would be used. The possibility of using state highway crews, who train on th IAP, do the work. It was stressed that, especially in view of litigations currently underway in El Paso regarding a fuel spill, fuel berm liners must and will be used.

DATE OF CONTACT: April 27, 1989

METHOD OF CONTACT: Personal Communication

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Edward Lundquist
Title: Environmental Engineer
Address: Control & Strategy Section
Air Quality Bureau
1190 St Francis Drive
Santa Fe New Mexico 87504
Telephone: (505) 827-0042

Discussion: Discussed air quality monitoring in the Roswell area. Mr Lundquit explained that they had received my letter of March 2, 1989 and had responded, only to have it returned in the mail. He further stated that the state of New Mexico cannot make determinations regarding impacts to air quality beyond local impacts. Impacts to national or regional air quality must be addressed by the EPA. I read a statement regarding my conclusions on air quality impacts to Mr Lundquist. He concurred with my view that, "given the relatively low-level of emmisions, the short duration of the proposed deployments, and the excellent dispersion patterns, the regions (ROI) ambient air quality would not be effected by the proposed action". I also queried him regarding additional data on current pollutant levels. He stated the monitoring station for Roswell (the courthouse) measures only dust and the closest station is Carlsbad. Baseline data is available from the Santa Fe office. We have requested the data from Santa Fe as suggested.

DATE OF CONTACT: April 28, 1989

METHOD OF CONTACT: Telephone Communication

ORIGINATOR: John Mastrianni

PERSON CONTACTED: LtCol Barna
Title: Asst Director Operations
Address: 8AF/ADO
Barksdale AFB LA 71110
Telephone: AV 781-3857

Discussion: We discussed the proposed visual patterns. Col Barna stated the patterns would be flown at 5400 feet AGL, would be flown around, not over portions of Roswell, as our noise model indicates. Also, the proposed October deployment has been cancelled and the next deployment will now be in January.

DATE OF CONTACT: April 28, 1989

METHOD OF CONTACT: Telephone Communication

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Lee Marlatt
Title: Refuge Manager
Address: Bitter Lakes NWR
P.O. Box 7
Roswell New Mexico 88202

Telephone: (505) 622-6755

Discussion: Discussed the possibility of 8AF adding an additional deployment, in October, to the two already deployed. My concern was would the additional deployment intrude on the migratory waterfowl populations that historically appear at the NWR beginning in October. Mr Marlatt stated that the primary concern would be lesser sandhill cranes and that species appeared at the refuge in small numbers beginning in early October but populations grew to significant numbers only in late October. Flights in early October should not be a problem.

DATE OF CONTACT: May 2, 1989

METHOD OF CONTACT: Telephone Communication

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Jenifer Fowler-Proust
Title: Wildlife Biologist
Address: USFWS
Refuges & Wildlife Office
500 Gold Ave SW
Albuqueque New Mexico
Telephone: (505) 766-8045

Discussion: We discussed the letter the FWS sent regarding Roswell. I queried why the FRW thought a Section 7 consulatation was needed. Ms Fowler-Proust responded that her corporate knowledge was limited to Bitter Lakes NWR and information regarding threatened/endangered species outside of the NWR would have to be obtained from the Endangered Species Office. She stated that her letter was not a request for consultation but rather was intended to point out that the ES Office must be consulted. I responded that we had written and called the ES office without success. She suggested that I double check with ES to see what happened to our queries. I concurred.

DATE OF CONTACT: May 2, 1989

METHOD OF CONTACT: Telephone Communication

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Mr Danahoo
Title: Assistant Chief
Address: USFWS
Endangered Species Office
500 Gold Ave SW
Albuqueque New Mexico
Telephone: (505) 883-7877

Discussion: Discussed the Refuge Office's request for Section 7 consultation. I told Mr Donahoo that we had sent a letter to his office thru the USFWS Regional Director requesting their views regarding the Roswell FOB proposal. He had not seen the letter and agreed to trace it and get back with a response. I told him our research indicated there were no threatened/endangered species in the area, other than least terns that nest in the Bitter Lakes NWR and some migratory eagles, occasional peregrine falcons and some amphibians that are not lekely to be impacted by our action. I also stated that we wanted to confirm our data, especially regards the air park itself and the adjacent area.

DATE OF CONTACT: May 3, 1989

METHOD OF CONTACT: Telephone Communication

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Mr Danahoo
Title: Assistant Chief
Address: USFWS
Endangered Species Office
500 Gold Ave SW
Albuqueque New Mexico
Telephone: (505) 883-7877

Discussion: This conversation followed up on our 2 May 1989 discussion. Mr Danahoo informed me endangered species reference number 89-096 has been assigned to the Roswell FOB project. He stated my letter of 2 March 1989 did not reach his office and he located it yesterday. He is currently preparing a written response. His preliminary findings indicate my view that the only endangered species prone to impacts of low-level flights inhabiting the Roswell area are the least terns already identified in the scoping process.

DATE OF CONTACT: June 27, 1989

METHOD OF CONTACT: Telephone Communication

ORIGINATOR: John Mastrianni

PERSON CONTACTED: LtCol Barna
Title: Asst Director Operations
Address: 8AF/ADO
Barksdale AFB LA 71110
Telephone: AV 781-3857

Discussion: Discussed munitions storage at Roswell IAP. It has been decided that, for the July and if necessary, the September deployments inert munitions only will be used. They would be BDU-48/50 and would be carried by the B-52. The long term EA must address the use of live munitions as 8AF intends to use live munitions over the long term. LtCol Barna stated that a survey of the site by 8AF munitions was conducted and a copy is on file with SAC/IGF.

DATE OF CONTACT: June 27, 1989

METHOD OF CONTACT: Telephone Communication

ORIGINATOR: John Mastrianni

PERSON CONTACTED: Mr Bill Weber
Title: District Engineer
Address: Environmental Improvement District IV
State of New Mexico
315 North Atchison Street
Roswell New Mexico 88201
Telephone: AV 781-3857

Discussion: Discussed requirements of the Resource Conservation and Recovery Act (RCRA) as it pertains to permits required for the Roswell deployment. Mr Weber stated that he checked with the state, county and city authorities and no permits were required for the fuel bladder site.

Appendix J: Correspondence

P—

IN REPLY REFER TO:

1795 (934)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
NEW MEXICO STATE OFFICE
Post Office and Federal Building
P.O. Box 1449
Santa Fe, New Mexico 87504-1449

MAR

Mr. John Mastrianni
HQ SAC/DEPV
Offutt Air Force Base, NE 68113-5001

Dear Mr. Mastrianni:

We have reviewed your proposal to deploy bomber units to the Roswell Air Park and have determined that the proposed air operations will not affect lands administered by the Bureau of Land Management (BLM). Therefore, we do not expect your air operations to effect any animals or vegetation within our jurisdiction.

If you need further assistance on this matter please contact our Roswell District Office, P.O. Box 1397, Roswell, New Mexico, (505) 622-9042.

Sincerely,

Larry L. Woodard

Larry L. Woodard
State Director

P/B

Economic Development Division

Roswell
CHAMBER OF
COMMERCE

March 21, 1989

Mr. John W. Baie, GM-13
Chief, Environmental Planning Division
DCS/Engineering and Services
DEPARTMENT OF THE AIR FORCE
Headquarters Strategic Air Command
Offutt Air Force Base, NE 68113-5001

RE: Proposed Deployment of B-52, FB-111, KC-135 and KC-10 aircraft and personnel at the Roswell Industrial Air Center, (R.I.A.C.).

Dear Mr. Baie:

On behalf of Mayor William F. Brainerd and the City of Roswell, we appreciate your consideration of the R.I.A.C. as a prospective site for your simulated conventional wartime operations.

As requested, we have reviewed your proposal to utilize the R.I.A.C; and offer the following information in answer to your questions

a. Roswell has 700-750 hotel/motel rooms that are available for your use. The major properties have on-call shuttle service from the R.I.A.C. The distance from the R.I.A.C. to the hotel/motel properties is approximately five miles. however, that represents only a ten minute drive in Roswell.

b. Mayor Brainerd assures me that the capacity of utilities serving the R.I.A.C. is more than adequate for all of your proposed operations, as was described in your letter. As you know, the R.I.A.C. used to be known as Walker Air Force Base. Today, the R.I.A.C. enjoys that proud history... but also benefits from a strengthened infrastructure that has developed as a result of excellent City stewardship.

c. The availability of public transport to and from the R.I.A.C. is partially referred to in answer "a". In addition, there is a general shuttle service, a city cab service, along with the possibility of utilizing National Guard Armory vehicles. (In fact, the Guard is constructing a new Armory at the R.I.A.C., and will be ready for occupancy by September 1989.)

Please let Mr. Mastrianni know that we will do everything possible to provide support for your simulated conventional wartime operations.

Thank you for the opportunity to work with you on this important project.

Sincerely,

J. J. Johnston, C.I.D.
C.E.O. and Director for
Economic Development

JJJ/ijn

cc: William F. Brainerd, Mayor
City of Roswell

John Mastrianni, HQ
AAC/DEVP

Dennis Ybarra, Manager
Roswell Industrial Air Center

P/B

STATE OF NEW MEXICO

OFFICE OF CULTURAL AFFAIRS
HISTORIC PRESERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

VILLA RIVERA, ROOM 101
228 EAST PALACE AVENUE
SANTA FE, NEW MEXICO 87503
(505) 827-8320

HELMUTH J. SALMEN
CULTURAL AFFAIRS OFFICER

THOMAS W. MERLAN
DIRECTOR

March 21, 1989

Mr. John W. Baie
Chief
Environmental Planning Division
Headquarters United States Air Force
Strategic Air Command
ATTN: HQ SAC/DEPV (John Mastrianni)
Offutt Air Force Base, Nebraska 68113-5001

Re: Austere Facilities Deployment, Roswell Industrial Air Park, New Mexico

Dear Mr. Baie:

At your request, I have reviewed the Strategic Air Command proposal to deploy seven to twelve aircraft and approximately 425 personnel per deployment to the Roswell Industrial Air Park, Roswell, New Mexico, for a total of 28 weeks per year, in order to determine what effect such deployments may have on significant cultural resources.

No properties entered in or determined eligible for inclusion in the National Register of Historic Places will be affected by the proposed project. In addition, I believe that it is highly unlikely that any previously unrecorded archaeological or historical sites will be found within developed areas of the Roswell Industrial Air Park. It is therefore my opinion that this undertaking will have no effect on any historic properties, provided that ground based activities are confined to developed portions of the Air Park. It is also my opinion that flight operations of the type described will have no effect on historic properties.

Thank you for the opportunity to consult with you on the proposed deployments. Provided that you have no further questions regarding my comments, this determination of no effect should conclude our consultation on this matter.

Sincerely,

Thomas W. Merlan
State Historic Preservation Officer

TWM:DER:bc/Log 18610

GOVERNOR

DIRECTOR AND SECRETARY
TO THE COMMISSION

State of New Mexico

DEPARTMENT OF GAME AND FISH

STATE GAME COMMISSION

March 20, 1989

Mr. John W. Baie, GM-13
Chief, Environmental Planning Division
DCS/Engineering and Services
HQ SAC/DEPV
Offutt Air Force Base, Nebraska 68113-5001

Dear Mr. Baie:

I am responding to your letter dated March 6, 1989 reference the proposal to deploy bomber units to the Roswell Industrial Park, New Mexico for simulated conventional wartime operations. Deployment will take place to support military exercises that will last approximately three weeks, with deployments taking place a total of 28-weeks a year. Flight operations will consist of six bomber and four tanker sorties a day, flown Monday through Friday between 8 AM and 9 PM.

Since flight routes and military operation areas were not identified in your letter, it is difficult for us to comment on site-specific impacts to wildlife resulting from the proposed flight activities. However, since no flight activities will occur below 3000-feet above ground level, the proposed action should not have a significant negative impact on wildlife in the area, and therefore we do not object to your proposal.

Thank you for the opportunity to review and comment on this project. If you have any questions, please feel free to contact Andrew Sandoval (505/827-7952) of this department.

Sincerely,

Bill Montoya
Director

BM/avs

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202

MAR 15 1989

Mr. John W. Baie
Chief, Environmental Planning Division
Headquarters Strategic Air Command
Offutt Air Force Base, Nebraska 68113-5001

Dear Mr. Baie:

This is in response to your March 2, 1989, request for our comments on proposing to deploy bomber units to austere facilities for simulated conventional wartime operations. We understand this deployment program will support various exercises, intermittently, for 28 weeks a year. We have no comments to offer on your proposed military operations.

Thank you for your coordination.

Sincerely yours,

Norm Thomas
Chief
Federal Activities Branch (6E-F)

New Mexico Health and Environment Department

CARLA L. MUTH
Secretary

MICHAEL J. BURKHART
Deputy Secretary

RICHARD MITZELFELT
Director

March 15, 1989

Mr. John W. Baie CM-13
Chief, Environmental Planning Division
Department of the Air Force
Offutt Air Force Base, Nebraska 68113-5001

Dear Mr. Baie:

In reference to our most recent correspondence concerning the review of potential impacts to air quality in the region of Roswell, New Mexico as a result of your program for simulated conventional war time operations, please be advised of our findings;

(1) We see no adverse effects of your exercises from the stand point of the pollutants which the Environmental Improvement Division regulates.

(2) With respect to global environmental impact of which we do not regulate, we cannot pass judgement in that area.

Should you have any questions, feel free to call me at (505)827-0046.

Sincerely,

Edward Lundquist
Environmental Engineer
Control Strategy & QA Section
Air Quality Bureau

– ENVIRONMENTAL IMPROVEMENT DIVISION –
Harold Runnels Building
1190 St. Francis Dr.
Santa Fe, New Mexico 87503

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87503

GARREY CARRUTHERS
GOVERNOR

TOM BAHR
CABINET SECRETARY

ANITA LOCKWOOD
DEPUTY SECRETARY

March 15, 1989

Mr. John Baie
Headquarters Strategic Air Command
Offutt Air Force Base, Nebraska 68113-5001

Dear Mr. Baie:

Thank you for the opportunity to review your proposed deployment activities in the Roswell, New Mexico area. From your description of operations, it is unlikely we will have any objections. However, for us to respond more specifically about potential impacts to the animals, vegetation, and land in our jurisdiction, we need to know more details about your flight routes and the sonic effects of the operations. Once you have provided us with more information, we can promptly respond to your proposal.

Sincerely,

Skeeter Paul

Skeeter Paul, Director
State Park & Recreation Division

SP:cv

VILLAGRA BUILDING - 408 Galisteo
Office of the Secretary
827-7836
Forestry Division
P O Box 2167 827-5830
Park and Recreation Division
P O Box 1147 827-7465

MARQUEZ BUILDING - 525 Camino de los Marquez
Office of the Deputy Secretary
827-5950
Administrative Services
827-5925
Energy Conservation & Management
827-5900
Mining and Minerals
827-5970

LAND OFFICE BUILDING - 310 Old Santa Fe Trail
Oil Conservation Division
P O Box 2088 827-5800

CAMPUS STATION - Socorro, New Mexico 87801
State Mine Inspector
c/o New Mexico Tech 835-5460

U.S. Department of Transportation
Federal Aviation Administration

Airport Traffic Control Tower

P.O. Box 5790
Roswell, New Mexico 88202

March 27, 1989

Mr. John Mastrianni
HQ SAC/DEVP
Offutt AFB, Nebraska 68113-5001

Dear Mr. Mastrianni:

The following is in reference to your letter dated March 16, 1989. In which you requested data on the proposed SAC deployment of seven to twelve aircraft and approximately 425 personnel.

1. Flight Operations

a. DEPARTURES. Six bomber and four tanker sorties per day should not have any adverse impact on Roswell Tower operations.

b. ARRIVALS. If all ten aircraft return at the same time, requesting multiple approaches/landings, the impact will be substantial. Anything other than an approach to a full-stop landing will be considered as a request. Every effort will be made to approve all requests. However, the sole and final authority for multiple approaches/landings will be with the tower personnel.

c. FLIGHT TIMES. The time frame mentioned for flight operations fits within our tower hours of operation, which are 7:00 to 21:00 local daily. Due to limited personnel, requests to extend the hours of operation need to be submitted at least 48 hours in advance.

2. Logistics

a. AIRCRAFT PARKING. The location of parking/fueling aircraft is of definite interest to the tower. If, as discussed at an earlier meeting, the seven to twelve aircraft will be parked/fueled on runway 12/30 this will have an impact on tower operations. It would mean that 33% of the available runways would not be usable for over half of the year.

b. LEASED BUILDINGS. The leasing of the buildings has no impact on tower operations. However, the location of the buildings on the airport would have an impact. Example: Building 1770 and 1776 are both located in the in-field area. Access to these buildings could necessitate the closure of taxiway "C" from the ramp area to the compass rose. The result would be that aircraft landing on runway 17 would be required to taxi an additional mile and a half to two miles. This would mean an added workload on both the Local and Ground Controllers, as well as an added imposition to the local users.

2. Tower Data

a. TOWER TRAFFIC. Historically, Roswell Tower's traffic is as follows: 6,367 tower operations and 2,225 IFR operations per month. Our busy days are Wednesday, Thursday and Friday. Sixty-five to seventy percent of the traffic are military T38, F111, T37, F15, F106 and F100 type aircraft. Additionally, Boeing, Beechcraft, Gulfstream, and Cessna Aircraft Companies use our facilities to perform aircraft certification testing. Lufthansa Airlines comes to us for crew training in their B747 and DC10. The Military Airlift Command and NASA bring C5A and B747 aircraft for practice approaches. The New Mexico Air National Guard has developed a Landing Zone, located Southeast of and parallel to runway 21, which is used by C130 and Helicopter type aircraft for assault landings.

b. TOWER INFORMATION. Roswell Tower is a Level II, Nonradar Approach Control Tower. Our hours of operation are from 0600 to 2100 Local, seven days a week. Presently we have 6 Full Performance Level Controllers and 5 Developmental Controllers.

4. Summary

The addition of SAC sorties to the aircraft operating into and out of Roswell Industrial Air Center (RIAC), except as noted in 1.b. above, should not have any adverse affect on our operations. However, the closing of runways/taxiways, the location and intended use of leased buildings, the intended aircraft parking/refueling areas, and the additional vehicles/personnel operating on or near movement areas would have a definite impact on our resources.

Sincerely,

GEORGE R. SWENSON
Manager, Roswell
Air Traffic Control Tower

COOPERATIVE EXTENSION SERVICE

NEW MEXICO STATE UNIVERSITY

BOX 3AE, LAS CRUCES, NEW MEXICO 88003-0031
COLLEGE OF AGRICULTURE AND HOME ECONOMICS

March 13, 1989

John W. Baie GM-13
Chief, Environmental Planning Division
DCS/Engineering and Services

Dear Mr. Baie:

Dean John C. Owens and the College of Agriculture and Home Economics greatly appreciate the opportunity to provide input with respect to the proposed deployment of bomber units at the Roswell Industrial Air Park.

Contact with Chaves County Extension Program Director Bill Thompson has revealed the following salient livestock-related considerations:

1) The majority of range calving has been completed (beef cows).
2) Sheep shearing is currently ongoing but should be completed approximately the first week of April.
3) Lambing is currently underway and should be completed by mid-April.
4) Goat shearing will start in April but the goats in the area are primarily mutton goats, not nanny goats, implying that normal airfield approaches during takeoff and landings should provide minimal livestock disturbance.

The above considerations will have minimal impact from the proposed 10 sorties per day schedule if deployment is scheduled after April 15th, except for low probability isolated incident events.

The major livestock consideration that may require additional planning is the presence of approximately 10,000 head of dairy cattle within 8 miles to the southeast of Roswell's industrial air park. Dairy cattle calve year-round, implying there is no "best time" of year to minimize adverse impact. In addition, a major impact of low altitude landings and takeoffs would be a potential reduction in milk production. The aforementioned impacts to dairy cow calving and milk production could both be alleviated by simply directing approaches and takeoffs away from the sensitive southeast area.

We greatly appreciate the opportunity to provide input during the planning process and trust that recommendations will be implemented.

Respectfully submitted,

John M. Fowler
Coordinator, Range Improvement Task Force

cc: John C. Owens, Dean
Robert Gilliland, Associate Dean
Bill Thompson, County Program Director

/gt

New Mexico Health and Environment Department

CARLA L. MUTH
Secretary

MICHAEL J. BURKHART
Deputy Secretary

RICHARD MITZELFELT
Director

March 10, 1989

Mr. John W. Baie GM-13
Chief, Environmental Planning Division
Department of the Air Force
Offutt Air Force Base, Nebraska 68113-5001

Dear Mr. Baie:

We are in receipt of your letter asking for a review of the potential impacts to air quality in the region of Roswell, New Mexico as a result of your program for simulated conventional war time operations.

Please be advised that we are looking into the air quality impact and will inform you should we find any adverse effects.

Sincerely,

Edward Lundquist
Environmental Engineer
Control Strategy & QA Section
Air Quality Bureau

— ENVIRONMENTAL IMPROVEMENT DIVISION —
Harold Runnels Building
1190 St. Francis Dr.
Santa Fe, New Mexico 87503

GOVERNOR

DIRECTOR AND SECRETARY
TO THE COMMISSION

State of New Mexico

DEPARTMENT OF GAME AND FISH

STATE GAME COMMISSION

April 13, 1989

Mr. John Mastrianni
Environmental Specialist
DCS/Engineering and Services
HQ SAC/DEPV
Offutt Air Force Base, Nebraska 68113-5001

Dear Mr. Mastrianni:

This letter is a follow-up to our telephone conversation on April 13, 1989 reference the proposal to deploy bomber units to the Roswell Industrial Park, New Mexico for simulated conventional wartime operations, and potential impacts to state-listed threatened and endangered wildlife. You specifically requested species lists for the six county area surrounding Roswell. Given this, enclosed please find a compilation of state-listed species for Chaves, Lea, Eddy, Roosevelt, De Baca and Lincoln counties. I should point out, however, that these lists encompass the entire counties and as such, are not site-specific to the Roswell Industrial Park and vicinity. Site-specific surveys will be necessary to determine the presence of any threatened and endangered species in the project area. For information on endangered plants, you need to contact Mr. Paul Knight with the New Mexico Division of State Forestry in Santa Fe.

I trust that this information will be of some value to you. If you have any questions, please feel free to contact me at (505) 827-7952.

Sincerely,

Andrew V. Sandoval

Andrew V. Sandoval
Chief-Environmental Section

Enc. 6
avs

	STATE ENDANGERED SPECIES	STATUS
1	Black-footed ferret	Recent occurrence unlikely
2	Olivaceous cormorant	Recent occurrence unlikely
3	Mississippi kite	Likely to occur
4	Bald eagle	Likely to occur
5	Peregrine falcon	Less than regular occurrence
6	Least tern	Likely to occur
7	Common ground-dove	Recent occurrence unlikely
8	Bell's vireo	Less than regular occurrence
9	Baird's sparrow	Less than regular occurrence
10	McCown's longspur	Likely to occur
11	River cooter	Recent occurrence unlikely
12	Sagebrush lizard	Likley to occur
13	Western ribbon snake	Less than regular occurrence
14	Barking frog	Likely to occur
15	Mexican tetra	Recent occurrence unlikely
16	Gray redhorse	Recent occurrence unlikely
17	Bluntnose shiner	Likely to occur
18	Mississippi silvery minnow	Recent occurrence unlikely
19	Pecos gambusia	Likely to occur
20	Bigscale logperch	Less than regular occurrence
21	Greenthroat darter	Likely to occur
22	Pecos assiminea	Likely to occur
23	Roswell spring snail	Likely to occur
24	Koster's spring snail	Likely to occur
25	Say's pond snail	Recent occurrence unlikely

	STATE ENDANGERED SPECIES	STATUS
1	Black-footed ferret	Recent occurrence unlikely
2	Bald eagle	Likely to occur
3	Peregrine falcon	Recent occurrence unlikely
4	Baird's sparrow	Less than regular occurrence
5	McCown's longspur	Less than regular occurrence
6	Mexican tetra	Recent occurrence unlikely
7	Bluntnose shiner	Likely to occur
8	Suckermouth minnow	Recent occurrence unlikely
9	Mississippi silvery minnow	Recent occurrence unlikely
10	Pecos gambusia	Recent occurrence unlikey
11	Bigscale logperch	Likely to occur

	STATE ENDANGERED SPECIES	STATUS
1	Bighorn sheep (desert race)	Recent occurrence unlikely
2	Brown pelican	Recent occurrence unlikely
3	Olivaceous cormorant	Recent occurrence unlikely
4	Mississippi kite	Less than regular occurrence
5	Bald eagle	Recent occurrence unlikely
6	Peregrine falcon	Less than regular occurrence
7	Least tern	Less than regular occurrence
8	Common ground-dove	Less than regular occurrence
9	Broad-billed hummingbird	Recent occurrence unlikely
10	Bell's vireo	Likely to occur
11	Gray vireo	Less than regular occurrence
12	Varied bunting	Likely to occur
13	Baird's sparrow	Less than regular occurrence
14	McCown's longspur	Likely to occur
15	River cooter	Likely to occur
16	Sagebrush lizard	Less than regular occurrence
17	Plainbelly water snake	Likely to occur
18	Western ribbon snake	Likely to occur
19	Trans-Pecos rat snake	Likely to occur
20	Rock rattlesnake(mottled race)	Likely to occur
21	Barking frog	Likely to occur
22	Mexican tetra	Likely to occur
23	Blue sucker	Likely to occur
24	Gray redhorse	Likely to occur
25	Bluntnose shiner	Likely to occur
26	Mississippi silvery minnow	Recent occurrence unlikely
27	Pecos gambusia	Likely to occur
28	Bigscale logperch	Likely to occur
29	Greenthroat darter	Likely to occur
30	Pecos spring snail	Likely to occur
31	New Mexico ramshorn snail	Likely to occur
32	Pope's mussel	Likely to occur
33	Wide pea-clam	Recent occurrence unlikely

	STATE ENDANGERED SPECIES	STATUS
1	Black-footed ferret	Recent occurrence unlikely
2	Mississippi kite	Likely to occur
3	Bald eagle	Recent occurrence unlikely
4	Peregrine falcon	Recent occurrence unlikely
5	Bell's vireo	Recent occurrence unlikely
6	Baird's sparrow	Less than regular occurrence
7	McCown's longspur	Likely to occur
8	Plainbelly water snake	Recent occurrence unlikely
9	Western ribbon snake	Recent occurrence unlikely

	STATE ENDANGERED SPECIES	STATUS
1	Colorado Chipmunk	Likely to occur
2	Black-tailed prairie dog	Likely to occur
3	Black-footed ferret	Recent occurrence unlikely
4	Bighorn sheep (desert race)	Recent occurrence unlikely
5	Bald eagle	Likely to occur
6	Common black-hawk	Recent occurrence unlikely
7	Peregrine falcon	Less than regular occurrence
8	Gary vireo	Less than regular occurrence
9	Baird's sparrow	Less than regular occurrence
10	McCown's longspur	Less than regular occurrence
11	Trans-Pecos rat snake	Less than regular occurrence
12	Sacramento mountain salamander	Likely to occur
13	Gray redhorse	Recent occurrence unlikely
14	White Sands pupfish	Likely to occur

	STATE ENDANGERED SPECIES	STATUS
1	Least shrew	Less than regular occurrence
2	Black-footed ferret	Recent occurrence unlikely
3	Mississippi kite	Likely to occur
4	Bald eagle	Recent occurrence unlikely
5	Peregrine falcon	Recent occurrence unlikely
6	Whooping crane	Recent occurrence unlikely
7	McCown's longspur	Likely to occur

U.S. Department of Transportation
Federal Aviation Administration

Airport Traffic Control Tower

P.O. Box 5790
Roswell, New Mexico 88202

April 14, 1988

Mr. John [illegible]
HQ, SAC [illegible]
[illegible] AFB, Nebraska 68113-5001

Dear Mr. [illegible]:

The following is to confirm the telephone conversation I had with one of your fellow employees earlier today:

The closure of Runway 12/30 would impact about 19% of the total traffic operating here at Roswell. However, as was discussed with Mary (I can't remember her last name), if the parking of aircraft could be limited to that area Southeast of Taxiway "C" the impact would be reduced by half, or to about 10% (a more acceptable figure). We believe that parking aircraft on the Diagonal Taxiway and that area of Runway 12/30 Southeast of Taxiway "C" would not adversely affect the SAC operation. As earlier discussed we feel that the fuel bladders could be placed Southeast of building 1770 and/or on the area North of the Diagonal Taxiway (between the Run-Ups) and/or on the triangle area South of the Diagonal Taxiway.

We feel that these changes would provide more of the necessary flexibility to the overall tower operation, be more acceptable to the majority of General Aviation aircraft and provide the needed Taxiway (Taxiway "C") for all aircraft operations.

Again let me stress that the problem is not with the flight operations of the aircraft but with the parking of the aircraft.

R—

United States Department of the Interior

FISH AND WILDLIFE SERVICE
POST OFFICE BOX 1306
ALBUQUERQUE, N.M. 87103

TAKE PRIDE IN AMERICA

APR 28 1989

BTL-17-Endangered

In Reply Refer To:
Region 2/RF/CL-3-180

John W. Baie, Chief
Environmental Planning
Division
HQ SAC/DEPV
Offutt Air Force Base,
Nebraska 68113-5001

Dear Mr. Baie:

In response to your March 2, 1989, letter concerning flights of B-52 and KC-135 aircraft from the Roswell Industrial Air Park in Roswell, New Mexico, members of my staff met with Ms. Mary Peters of your office and Mr. Robert Scott of Woodward-Clyde Consultants on April 13, 1989. Our concerns, as discussed at that meeting, are twofold: first, that consultation under Section 7 of the Endangered Species Act be initiated as soon as possible, and second, that flights over the Bitter Lake National Wildlife Refuge (Refuge) be conducted to avoid adverse impacts to the natural resources of the Refuge.

If we may be of any assistance to you in addressing these concerns, please do not hesitate to contact this office. We look forward to working with you in this matter.

Sincerely,

Regional Director

New Mexico Health and Environment Department

April 28, 1989

Mr. John Mastrianai
Headquarters/SAC/DEVP
Department of the Air Force
Offut Air Force Base, Nebraska 68113-5001

Dear Mr. Mastrianai:

In reference to our phone conversation on Friday, April 27, 1989, please find enclosed our letter to Mr. Baie of March 15, 1989.

For reference purposes, we would appreciate your brief document/reference per the amounts of pollution and EPA modeling used.

Sincerely,

Edward Lundquist
Environmental Engineer
Control Strategy & QA Section
Air Quality Bureau

– ENVIRONMENTAL IMPROVEMENT DIVISION –
Harold Runnels Building
1190 St. Francis Dr.
Santa Fe, New Mexico 87503

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
Suite D, 3530 Pan American Highway, NE
Albuquerque, New Mexico 87107

Cons. #2-22-89-I-096

May 4, 1989

Mr. John W. Baie, Chief
Environmental Planning Division
Headquarters Strategic Air Command
Offutt Air Force Base, Nebraska 68113-5001

Dear Mr. Baie:

This responds to your letter dated March 2, 1989 requesting comments on species Federally listed or proposed to be listed as threatened or endangered. The proposed action involves deployment of seven to 12 B-52, FB-11, KC-135 and KC-10 aircraft and approximately 425 personnel at the Roswell Industrial Air Park. Your geographic area of interest is Chaves County, New Mexico.

We have used the information in your request to narrow the list of species occurring in the project area to those which may be affected by your proposed action. We find the interior least tern may be found in the project area (see enclosure).

Information relating to the Section 7 consultation process has been enclosed for your use in project planning. We suggest you contact the New Mexico Department of Game and Fish and the New Mexico Energy, Minerals and Natural Resources Department for information concerning fish, wildlife and plants of State concern.

If we can be of further assistance, please call Mike Donahoo at (505) 883-7877 or FTS 474-7877.

Sincerely,

Michael J. Donahoo

for John C. Peterson
Field Supervisor

Enclosure

cc: (w/cy encl)
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Director, New Mexico Energy, Minerals and Natural Resources, Forestry Division, Santa Fe, New Mexico
Refuge Manager, Bitter Lake National Wildlife Refuge, U.S. Fish and Wildlife Service, Roswell, New Mexico
Regional Director, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement and Refuges and Wildlife, Attn: Nita Fuller, Albuquerque, New Mexico

SPECIES LIST
Headquarters Strategic Air Command
Roswell Industrial Air Park, Chaves County, New Mexico

May 4, 1989

Endangered Species

Interior Least Tern (Sterna antillarum athalassos) - This species nests on sandy beaches on shorelines of streams, rivers and lakes and is found on Bitter Lake National Wildlife Refuge with some sighting Bosque del Apache National Wildlife Refuge.

Authority: John P. Hubbard, New Mexico Department of Game and Fish, State Capitol, Santa Fe, New Mexico 87503, (505) 827-2438.

COORDINATION AND FILE COPY

SAC FORM 96, AUG 87
PREVIOUS EDITION WILL BE USED

FUNC ADDRESS SYMBOL	CA	NA AND DATE
CINC/CC		
VCINC/CV		
CS		
CSA		
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XO		
XP		

DEVP

Review of Draft Environmental Assessment for Deployment to Roswell Industrial Air Park

DONO DOTT JACE SGPB IGFF DEVN

1. Please review the attached environmental assessment for adequacy (AFR 19-2). Request your comments be returned to this office no later than 17 May 1989. A negative reply is requested.

2. Point of Contact for this matter is John Mastrianni, Ext 45854, HQ SAC/DEVP.

JOHN W. BAIE, GM-13
Chief, Environmental Planning Div
DCS Engineering & Services

Atch:
Environmental Assessment

RETURN TO:	FUNC ADDRESS SYM	ORIGINATOR'S NAME AND GRADE	PHONE NO	TYPIST'S INITIALS	DATE TYPED